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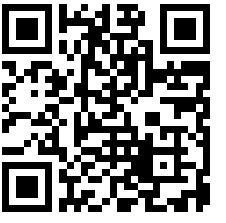

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ESTABLISHED 1856

Fifty-Seventh Annual Volume

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THE "Railway World," published since 1856 as a weekly periodical, begins the New Year in the form of a monthly. Arrangements have been made with men prominent in commercial and industrial pursuits to discuss questions pertaining to the proper maintenance and development of our transportation agencies, while the services of a staff of specially qualified contributing editors will increase the efficiency of this character of effort. The new journal will be non-partisan in character and will be used freely for the discussion of transportation problems from the standpoint of the user, as well as from that of the owner. Its policy, in a broad sense, will be to present an accurate monthly review of railway developments and requirements and to assist in establishing a better understanding and a broader sympathy between those who employ and those who operate the railways.

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Railway World

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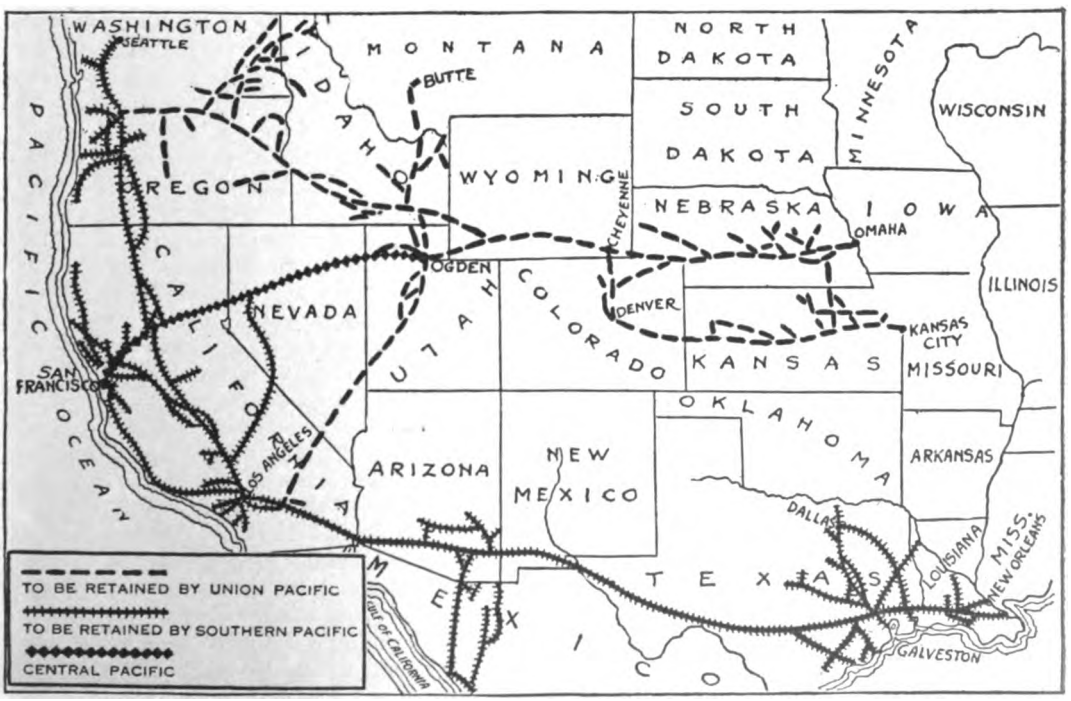
Important Developments in the Railway Field

DECEMBER was a month of hearings, investigations, bills, programs, reports and recommendations. The country is apparently on the eve of another era of readjustment in intercorporate relations. In Washington the Pujo Committee has been delving into the intricacies of the so-called "Money Trust." The people of southern New England are up in arms against the New York, New Haven and Hartford. Legislatures in a number of States will soon be struggling with public utilities bills. The Democratic majority is laying plans for sweeping tariff revision. Emboldened by the partial success of the engineers, the firemen's organization is pushing their demands for higher wages. Of threats, predictions, demands, charges and counter-charges December has been full. Of actual news, however, the month has not been unusually prolific.

DISSOLUTION OF THE HARRIMAN MERGER.

MOST important of December happenings of interest to the railroads are the decisions of the United States Supreme Court in the Union Pacific and Anthracite Coal Roads cases. On Monday, December 2d, the United States Supreme Court handed down a decision holding that under the Sherman anti-trust law of 1890 the acquisition, by the Union Pacific, of a large block of stock in the Southern Pacific, was illegal.

The importance of the decision lies in its application of the principles of the Sherman anti-trust law to new conditions. The Court, in declaring the Union Pacific holding of Southern Pacific stock to be an illegal combination in restraint of trade, went far beyond the Northern Securities decision. In that case the offense which the decision condemned was the organization of a holding company which exchanged its stock for controlling interests in the stocks of the Great Northern and the Northern Pacific, two companies competing in the same territory. In this case the restraint of trade was actual and direct. In the Union Pacific case, on the other hand, the Court lays down the principle that no matter whether the holding of stock by one company in a



THE HARRIMAN SYSTEM AND THE MANNER OF ITS DISINTEGRATION.

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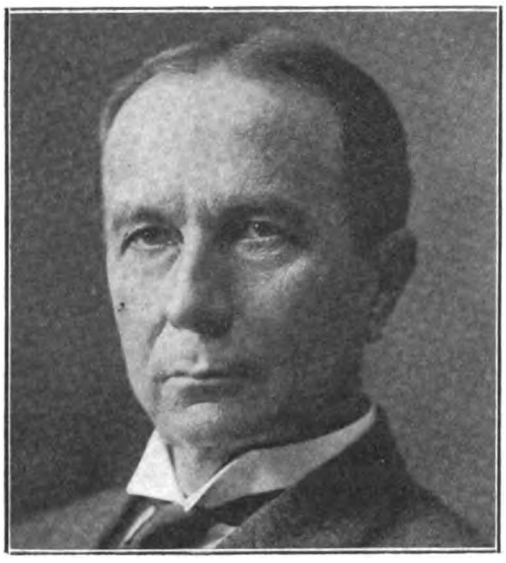

JUDGE ROBERT S. LOVETT,
THE PRESENT HEAD OF THE HARRIMAN SYSTEM.

EDWARD H. HARRIMAN,
THE MAN WHO FORMED IT.

competing company results in an actual restraint of competition or not, the mere power to restrain competition which that stock ownership gives, is sufficient to bring the stock ownership within the prohibition of the statute. And furthermore, according to the Union Pacific decision, it is not necessary that the stock so held should be a majority of the competing line; any holding which is sufficient to enable a company to dominate the policy of a competitor is declared to be unlawful.

The Court holds that "the consolidation of two great competing systems of railroads engaged in interstate commerce by a transfer to one of a dominating stock interest in the other creates a combination which restrains interstate commerce within the meaning of the statute because in destroying or greatly abridging the free operation of competition theretofore existing, it tends to higher rates. Nor does it make any difference," says Justice Day, who wrote the opinion, "that rates for the time being may not be raised and much money be spent in improvements after the combination is effected. It is the scope of such combinations and *their power* to suppress or stifle competition, or create monopoly which determines the applicability of the act."

In the Oil and Tobacco decisions by applying the famous "rule of reason" to determine the illegality of these combinations, it was believed that the Supreme Court had altered the essential character of the Sherman anti-trust law to the extent that unless the Government could prove that a particular combination had actually effected a monopoly of interstate commerce, such a combination should not be declared unlawful. Previous decisions, notably the Northern Securities decision, had strongly emphasized the significance of the power existing in a combination to restrain trade. In that case it was held that since competition by reducing rates and in other ways tends to reduce profits and since the natural tendency of any owner of property is to make that property as valuable as possible, the joint ownership by the Northern Securities Company in the stocks of two previously competing railroads naturally tended toward such a regulation of their policies as would do away, so far as possible, with the effects of competition. Potential restraint of trade was given great prominence in this and in other decisions When the Oil and Tobacco decisions were handed down, however, the emphasis was placed upon actual restraint of trade, upon a conscious and deliberate attempt extended over a period of many years, on the part of these great corporations to secure by methods, whose propriety and legality the Court did not inquire into, the position of dominating influence in their respective trades. These combinations, because of their policies and because of the large measure of success which they had achieved, were declared to be combinations in restraint of trade. Critics of the decisions claimed that so long as no overt acts were committed by combination of previously competing concerns so long as they did not attempt to exclude others from the trade or to gain a supreme position in their line of business, by methods which operated to exclude others, they were in no danger. In other words, that so long as restraint of trade was not unreasonable, that is monopolistic, it would not be prohib-

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ited. It is upon this interpretation of the decision that the United States Steel Corporation and the American Sugar Refinery Company have relied in answering the Government's charges.

The Union Pacific decision, however, shows clearly that when the Court interpreted the Sherman law in the light of reason it merely meant an interpretation in the light of common sense. In other words, that a law which prohibited every combination in restraint of trade should not be forced and strained into a prohibition of the consolidation between two rival express routes, as Judge Lacombe of the United States Circuit Court, had interpreted it; and the Chief Justice, it will be remembered, in the Tobacco case, showed that the application of the rule of reason brought within the scope of the act many transactions which, by a strict interpretation of its language, would fall outside of its limitations. The Oil and Tobacco decisions, in other words, so far from limiting the Sherman anti-trust law, greatly broadened and strengthened it, and this appears very clearly in the present decision.

How far the Court has gone in protecting the community against the very possibility of monopoly, can be realized when it is considered that this combination between the Union Pacific and the Southern Pacific was not entered into by Mr. Harriman with any other motive than to secure an outlet to the Pacific for the Union Pacific over the lines of the Central Pacific which the Southern Pacific controlled. Mr. Harriman endeavored to purchase from the Southern Pacific the old Central Pacific line running between Ogden, where the Union Pacific terminates, and San Francisco. After failing in this he endeavored to purchase the holdings of the late Collis P. Huntington in the Southern Pacific, and was successful in this after Mr. Huntington's death. It was in the light of this consideration that the Circuit Court held that the combination effected by the purchase was not intended to restrain trade but merely to gain a Western outlet for the Union Pacific and was, therefore, not unlawful.

The Supreme Court rejects this contention. Justice Day says upon this point: "A large amount of the testimony in this voluminous record was given by railroad men of wide experience, business men and shippers, who, with practical unanimity expressed the view that prior to the stock purchasing question, the Union Pacific and Southern Pacific systems were in competition, sharp, well defined and vigorous for interstate trade. To compete is to strive for something which another is actually seeking and wishes to gain. The Southern Pacific, through its agents, advertisements and literature, had undertaken to obtain transportation for its Sunset or southerly route across the continent, while the Union Pacific had endeavored in the same territory to have freight shipped by way of its own and connecting lines, thus securing for itself about 1,000 miles of the haul to the coast. * * * * Competition between two such systems consists not only in making rates, which so far as the shipper was concerned, the proof shows, were by agreement fixed at the same figure, whichever route was used, and then apportioned among the connecting carriers upon a basis satisfactory to themselves, but includes the character of the service rendered, the accommodation of the shipper in handling and caring for freight and the prompt recognition and adjustment of the shippers' claims. Advantages in these respects were the subjects of representation and the basis of solicitation by many active, opposing agencies The maintenance of these by the rival companies promoted their business and increased their revenue. The inducement to maintain these points of advantage—low rates, superiority of service and accommodation—did not remain the same in the hands of the single dominating and common ownership as it was when they were the subjects of active promotion by competing owners whose success depended upon their accomplishment."

Since the union of the two properties by means of stock ownership is held illegal, the Court orders the Union Pacific to dispose of its holdings of Southern Pacific stock within three months. The judgment of the Court, however, is not to be construed to prohibit the Union Pacific from retaining the Central Pacific connections from Ogden to San Francisco, providing that a plan satisfactory to the Government and the Court for accomplishing this result can be devised.

In carrying out the Court's decree the Union Pacific directors are to some extent handicapped by the unexpected opposition of the Attorney General to the plan of dissolution adopted in the Oil and Tobacco cases. Mr. Robert S. Lovett, Chairman of the Executive Committees of the two railroads, on December 18, stated: "The Attorney General of the United States has refused to approve any plan involving the distribution of the $126,650,000 par value of stock of the Southern Pacific Company owned by the Union Pacific Railroad Company exclusively to the stockholders of the latter in proportion to their holdings, whether by sale, dividend, or otherwise, and it is declared that he will appeal in the event the District Court should approve pro rata distribution." The natural method of serving the two companies would be for the Union Pacific to distribute to its stockholders its holdings in Southern Pacific stock. This method is blocked by the Attorney General's opposition. The plan which is likely to be adopted is to sell this stock either to some outside syndicate or to the stockholders of the Union Pacific Company. This method will have the advantage of preserving the assets of the Union Pacific intact instead of reducing them by an enormous dividend

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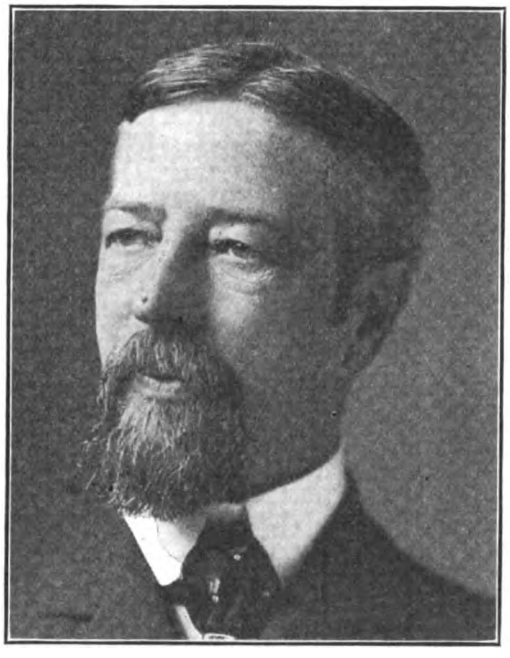
THE ANTHRACITE COAL TRUST DECISION.

THE Union Pacific decision was to some extent offset on December 16th by the Supreme Court, which, in a unanimous decision by the six sitting judges, held that the existence of the so-called "Anthracite Coal Trust" alleged to consist of six anthracite carrying roads and their subsidiaries had not been proved by the Government.

The Court found that the purchase of a majority stock of the Temple Iron Company was for the purpose of preventing the construction of a new railroad into the anthracite region and the railroads owning this stock are ordered to dispose of the same. In reference to the Temple Iron Company the Court says: "This combination of the defendants through the Temple Iron Company was effective, the New York, Wyoming and Western Railroad was successfully strangled, and the monopoly of transportation collectively held by the defendant carrier companies was maintained." The Court also held that the 65 per cent contracts by which a large number of independent operators sell their coal to the carriers at 65 per cent of the tidewater price, are also unlawful, since this series of contracts are "the result of a concerted plan or plot between the defendants to thereby



GEORGE F. BAER, PRESIDENT, PHILADELPHIA AND READING RAILWAY.

secure control of the sale of the independent coal in the markets of other States and thereby suppress competition as between their own output and that of the independent operators, would come plainly within the terms of the statute and as parts of the scheme or plot would be unlawful."

While the Government wins on these minor points which, as a prominent official of the Reading said, are wholly immaterial, the general charge hat the Reading, Lehigh Valley, Lackawanna, New Jersey Central, Erie, and New York, Susquehanna and Western are engaged in an illegal conspiracy to restrain trade was dismissed as not proven. The Court finds that the charge of such a combination was "general and indefinite" and that the case was "barren of documentary evidence of solidarity." Aside from the purchase of the Temple Iron Company and the making of the 65 per cent contracts, there is no further evidence of the combination in restraint of trade.

The Court was asked to deal with certain "minor combinations," for example, the joint control of the Philadelphia and Reading Railroad and the Central of New Jersey by the Reading Company, and the absorption of the New York, Susquehanna and Western in 1908 by the Erie which subsequently took over the Pennsylvania Coal Company. These minor combinations were not passed upon, but were left for future consideration.

It is in this postponement that the chief interest of the Anthracite decision lies and that interest must be considered in the light of the Union Pacific decision. The first decision declared that any contractual arrangement between two railroads engaged in interstate commerce, which contained the possibility of restraining competition between them, was illegal. This principle was laid down in the broadest possible terms. Now, it is well known, both in the anthracite region and

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generally throughout the American railroad world, that such contractual relations, whether or not they actually restrain competition, have the power to do so, are numerous. The case just referred to of the Reading is familiar. The Philadelphia and Reading Railroad Company and the Central of New Jersey, while not active competitors throughout a large territory, nevertheless do compete, but a controlling interest of both companies is owned by the Reading Company, and in the light of the Union Pacific decision the legality of this controlling interest is seriously called in question. The Lake Shore and Michigan Southern and Michigan Central are competing lines connecting Buffalo and Chicago; the New York Central owns 90 per cent of the stock of the Lake Shore, and 85 per cent of the Michigan Central; the New York, Chicago and St. Louis and the Lake Shore are competing lines between Buffalo and Chicago and the West Shore and the New York Central compete between New York and Buffalo. Here again the identity of interest is apparent. The Cleveland, Cincinnati, Chicago and St. Louis operates an indirect route from Cleveland, a point on the Lake Shore, to Chicago, and the underlying interest in the Big Four is owned by the Lake Shore. Passing to the South the Pittsburgh, Fort Wayne and Chicago and the Pan Handle route connect Pittsburgh and Chicago. Both of these companies are controlled by the Pennsylvania. The Pennsylvania owns approximately 51 per cent of the stock of the Norfolk and Western which carries soft coal to the seaboard in competition with coal moving over the Pennsylvania and other lines. The Lake Shore, a New York Central subsidiary, and the Baltimore and Ohio, which is to some extent controlled by the Pennsylvania, own together a large minority interest in the Reading. The Baltimore and Ohio depends upon the Reading for its entrance into New York. The New Haven and Hartford owns control of the Boston and Maine, with which it is naturally competitive. This list could be continued indefinitely. The whole trend of American railway development has been to eliminate wasteful, costly, cut-throat competition between railroads by various plans of community of interest. Against these plans the Union Pacific decision is directly leveled.

NEW ENGLAND AND THE NEW HAVEN.

SOUTHERN New England is deeply aroused by what it terms the breach of faith on the part of the Grand Trunk Railway Company of Canada and for which it holds President Chas. S. Mellen, of the New Haven and Hartford, responsible. It is well known that President Mellen believes that the prosperity of New England is dependent upon securing of united action by New England railroads. In a statement recently issued Mr. Mellen sums up the situation of New England as follows: "New England is a great terminal railroad yard connecting with substantially all the railroad systems of the country. It is a purchaser of raw materials which must come in by land or sea at competitive and the lowest freight costs. It reconverts these materials and sells them as finished products of a very much lessened tonnage and very much greater value, and this gain in value represents the genius and the labor of New England. Be it ever remembered that New

CHARLES S. MELLEN,
PRESIDENT, NEW YORK, NEW HAVEN AND HARTFORD RAILROAD.

E. J. CHAMBERLIN,
PRESIDENT, GRAND TRUNK RAILWAY.

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England's incoming and outgoing freight is competitive in all the markets of America and it should be our duty to make it so in all the markets of the world. In this competition the New England States are at a disadvantage as they lie farthest East, and speaking generally, must haul their raw cotton, their flour and outside food supplies, their metals and their coal from extreme distant points.

"In general, the railroad rates to the seaboard are on such a basis that it pays the trunk lines of the country better to dump their freight into New York, both for export and domestic consumption, and to permit the New England lines to participate in the through rates. New England's railroad system must, therefore, forever fight in the railroad world for its own existence and the existence of industrial New England.

"This contest can best be carried on, in my judgment, by a united New England and a united transportation system east of the Hudson River. In union there is strength, and when New England's railroad system is allowed to fight both on land and sea, with the concentrated traffic of New England behind it, the situation is very much better for all New England than if her forces were divided and scattered."

To put Mr. Mellen's case more plainly than he would care to state it, New England's industrial supremacy is dependent upon securing favorable divisions of through rates with connecting lines of railroad leading to the South and West. By controlling the large New England tonnage which could be thrown this way or that, as considerations of advantage might dictate, Mr. Mellen has been able to keep New England in the race for industrial supremacy. In pursuance of this policy the New York, New Haven and Hartford has acquired what is equivalent to a position of dominating control of the transportation system of southern New England. The cost of making the numerous acquisitions, Boston and Maine being the last, has been enormous. It was estimated in 1910 that the company had, up to that time, under President Mellen's direction, paid over $100,000,000 for the securities of various companies and in addition had exchanged its own stock for the stock of the Boston and Maine. The acquisition of his only important competitor raised a storm of protest throughout Massachusetts, and this feeling of hostility and irritation of the people of Massachusetts, who saw the railroad which had been identified with the State for so many years absorbed by a Connecticut corporation, was intensified by a reduction of the Boston and Maine dividend to 4 per cent.

The only effective rival to the New Haven and Hartford in southern New England was the Grand Trunk. This company controls the Central Railroad of Vermont which gives it access to Long Island Sound at New London. It did not, however, have access to more than a small portion of the rich traffic of this section since the New Haven and Hartford would make no traffic agreement with the Grand Trunk. Now began a program of railway strategy whose object, as events have proven, was to force the New Haven and Hartford to make such a traffic agreement. Relying upon the traditional and deeply rooted belief of the American people in the efficacy of railway competition to secure good service and lower rates, the Grand Trunk appealed to the legislatures of Rhode Island, New Hampshire and Massachusetts to grant it permission to build lines from Windsor, Vermont, to Boston, and from Palmer, Mass., on the Central Vermont, to Providence, R. I. Hon. James W. Remick, of Concord, N. H., counsel for the Grand Trunk Railway in that State, in a public letter, addressed to the associate organizations and individuals "whose support of the Grand Trunk may have been induced by my assurances of its good faith," claims that he received the most binding assurances, both verbally and in writing, from Grand Trunk officials "that the purpose of the Grand Trunk was to actually extend its lines to Boston and not, by the menace of extension, to force a traffic arrangement which would merely make the Grand Trunk another ally of the New Haven and leave the peo le more than ever subject to the dominating force of the New Haven and Hartford."

Upon the strength of such assurances Mr. Remick secured the desired public support. He says, "Boards of Trade, the Grange, commercial bodies, and labor organizations, through their accredited journals came to the support of the Grand Trunk. More than 20,000 citizens in every part of the State united in petitions in favor of the proposed extension. All three of the great political parties had adopted declarations unmistakably favorable to the Grand Trunk project. * * * * The legislature chosen was overwhelmingly favorable to the Grand Trunk, a charter to the Grand Trunk to build somewhere across the State to make its connection with Boston would have been granted by the legislature hands down. This was a foregone conclusion, and everybody who had any understanding of the situation recognized it, and none more clearly than those in opposition."

The sentiment of New Hampshire was duplicated in Massachusetts and Rhode Island. Both Boston and Providence promised to provide harbor terminal facilities for the new lines, and Providence has already spent large sums for the purpose. A large amount of work has already been

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done in Rhode Island by the Southern New England. The New Haven and Hartford opposed the new projects in every possible way, but was unsuccessful.

Suddenly, however, it was announced to the surprise and consternation of the public that the Grand Trunk extensions from which so much had been expected, had been abandoned and also that a draft of a proposed traffic agreement between the Grand Trunk and the New Haven and Hartford was under consideration. This agreement, which has since been published, contemplates the running of through trains, through cars, the selling of through tickets, the checking of through baggage, the through billing of freight, and in all respects the use of the lines of roads of the parties hereto, so far as the public is concerned, as if in reality they were one road; also,

"The meeting of competitive conditions arising from time to time in rates and service, and of maintenance, so long as legally may be of the present differential basis of rates now accorded to the Grand Trunk, except that nothing shall be construed to prevent such modification of said differential rates as may from time to time be agreed to by the Grand Trunk."

By this agreement, if consummated, the Grand Trunk will obtain, presumably on favorable terms, entrance to every town in southern New England, and the people of New England will be able to ship over the Grand Trunk lines and the lines of its connections exactly as though the lines of the New Haven and Hartford and the Boston and Maine has been physically duplicated by the Grand Trunk. In other words, by the proposed agreement New England is given another railroad outlet which is all that the proposed extension of the Grand Trunk contemplated. This obvious fact is, however, lost sight of in the general outcry of denunciation. The prevailing tone of criticism is seen in the following extract from an address before the House Rules Committee by Representative O'Shaughnessy, of Rhode Island, speaking in support of his resolution for the appointment of a committee to make a general investigation of the business and operation of the New Haven in its connection with and ownership of other roads: "The coming of the Southern into New England was hailed with unbounded joy by a people who had suffered long from the grinding monopoly of the New Haven road. The granting of the charter to the Southern road was bitterly fought by the New Haven. The people of Rhode Island, however, gave full faith and credence to the statement made by the late Charles M. Hays, president of the Grand Trunk Railway: 'When any railroad or individual can find one atom of evidence that the good faith of the Grand Trunk or the word of its president has ever been broken it will be time, for monopoly to breed suspicion to bad faith. But if those enemies to progress who have decided upon a dog in the manger policy in Rhode Island want such slanders to bear fruit they must seek some other soil than the record and reputation of the Grand Trunk.'

"The charter was accordingly granted and the Grand Trunk, after overcoming legislative obstacles in New Hampshire and Massachusetts, * * * * started its work among general rejoicing and the fond expectations that a real rival had at last challenged the monopoly of the New Haven. President Hays went to his death on the Titanic, and it appears that honor died with him so far as sacred promises and pledges were concerned. A generous people whose State had been torn wide open had been outrageously betrayed." And the Grand Trunk's counsel in New Hampshire, already quoted, wrote to President Fitzhugh, of the Southern as follows: "Having encouraged the people of New England to expect relief from the existing railway monopoly, and having thereby enlisted their support of the proposed extensions, to now make a deal with the New Haven Railroad for the abandonment of those extensions and leave the people subject more than before to the New Haven domination would be an outrage, as I view the matter. The unused charters and the abandoned works and proceedings would be sure to stand as a monument to the Grand Trunk, stirring the people to unceasing resentment and indignation towards all parties to the deal."

The Grand Trunk officials are extremely evasive in their explanations of the reason why construction work in Rhode Island was abandoned. Financial difficulties are suggested and political hostility is also brought forward. So far as can be learned, however, the real explanation is that with the securing of a satisfactory agreement with the New Haven and Hartford all reason for the new construction from the standpoint of the Grand Trunk disappeared.

President Mellen has been most outspoken in defense of the policy of his company and he has vigorously declared that he was in no way responsible for the abandonment of the Grand Trunk project. In the statement already referred to he says: "It is a delicate matter for me to discuss my railroad neighbors with whom I hope to live in peace and do business; but I am not responsible for either the beginning or the end of the Grand Trunk attempt to reach Providence. I will make this statement as positive as any one could wish, and I do not know at this moment that the plan of its going to that city has been abandoned."

Aroused by this incident, the long cherished resentment of New England toward the New Haven and Hartford has burst into flame. The newspapers are filled with denunciations of the bad

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service and inadequate facilities which it is claimed the company furnishes. Scheduled and actual time of fast trains are published, statistics of wrecks are given much prominence in certain newspapers, the high prices which it is claimed the New Haven is paid for control of other companies are made much of, and, in short, by every device of the professional agitator with which the enemies of the New Haven and Hartford by long practice are entirely familiar, the attempt is made to work up public sentiment against the road. By some it is proposed that the new line should be built by outside capital; again, the State of Massachusetts is urged to exercise the right reserved in the Boston holding company bill to purchase the stock of the Boston and Maine, now held in the interest of the New Haven and Hartford by that company. More recently indictments have been found against prominent officials of the New Haven.

Most of this criticism has some foundation in facts. There are few railroads in the country, especially in recent years, when the cost of operation has mounted so rapidly, which cannot be charged to some extent, with inadequate facilities and service. When Mr. Mellen took charge of the New Haven and Hartford its property was in very bad condition. He had made very great improvements in facilities and service but most of these leave much to be desired. Although a large amount of money has been spent in improving the property, his view of the necessities of the situation influence Mr. Mellen to utilize the credit of the company to the uttermost in securing a position of control which would enable him to maintain the interests of New England in competition with other sections.

That this purpose has been pursued by Mr. Mellen in entire good faith and in an honest desire to advance the interests of the section where he was born and where nearly his entire active life has been spent is not to be doubted. The people of New England may not be, and are not, apparently satisfied with certain features of the New Haven management. They claim that the rates are too high, that the train service is inadequate, and that station facilities are unsatisfactory. They claim, also, that the property of the New Haven, and this criticism can be made with equal justice of the property of the Boston and Maine, is not in first class condition and that passenger traffic over its lines is not entirely safe. It is true that these criticisms can be directed with equal force against many other large railway companies, but this does not alter the fact that as President Mellen conceded, the service and facilities of the New Haven are by no means perfect. What, then, is to be done? How can the situation best be remedied?

Apparently it is the belief of Mr. Brandeis and his associates in the attack upon the New Haven, that the company can be induced to improve its service and facilities if only sufficiently harassed by legislatures, courts and commissions, if it is properly investigated by congressional committees, if its corporate relationships are attacked by the Department of Justice, and if its officials are placed under indictment by federal grand jury. This is the improved method of rectifying corporate abuses in the United States, and just now it is being utilized to the fullest extent in New England. So far has the public mind been inflamed against the company that President Mellen states: "We have been obliged now for several weeks to have our tracks constantly patrolled and in spite of the most unusual precaution have been unable to prevent two notable attempts and several minor ones at train wrecking. The number of attempts to secure newspaper notoriety by loosening spikes and reporting them to discredit the road, has been most deplorable." The people of New England are struggling in the throes of a veritable spasm of self pity. Pulpit, platform and press abound with cries of anguish, they are the innocent victims of oppressive railway monopoly. Unless they rise in their might and shake off the yoke of the oppressor, however this may be done, even worse things may befall them.

This excitement and agitation seems to us to be somewhat overdone. The railroads of New England are subject to the absolute control of the States through which they run. It is within the powers of the legislatures of these States to clothe their public utility commissions with authority over rates, finances, facilities and service as absolute as the authority possessed by the utility commissions of New York and Wisconsin. In this way the people of the New England States can construct machinery adequate to regulate and reform every abuse of which they now complain.

The principle of railway regulation and the public responsibility of the railway is now generally admitted, but there is a right way and a wrong way to exercise such regulation. The right way is by the careful methods of public service commissions to which the legislature delegates its authority over public utility companies. By this method the corporations are protected against such senseless competition as that proposed by the Grand Trunk which could have had no other effect than to increase the fixed charges which New England traffic must bear, and at the same time, these companies can be prohibited from charging unreasonable rates. Issues of stocks and bonds by public service corporations can be properly supervised, a high standard of service can be insisted upon and the provision of facilities adequate to perform such service can be required. This, as above stated, is the right way to rectify railway abuses. The wrong way is that now being so perfectly exemplified by the good people of New England.

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THE RAILWAY LABOR CONTROVERSY.

THE recent award of the Arbitration Commission gives the Trunk Line engineers substantial advances in pay, an award which has been immediately followed by the presentation of demands on behalf of the firemen employed by the same companies. These demands would entail an increase in operating expenses, according to Mr. Elisha Lee, Chairman of the Managers' Committee of the railroads, amounting to $15,134,000 a year. These demands represent, however, substantial reductions from those originally presented, which included proportionately higher wages for overtime and two firemen on all freight engines. After discussion of the original proposals, the representatives of the firemen made material modifications in their demands with the result that the conference committee of managers, as Mr. Lee states in a letter to W. S. Carter, President of the Brotherhood of Locomotive Firemen and Enginemen, have reached the conclusion that many features of the firemen's requests seem to be "susceptible of satisfactory solution and agreement." The outlook is, therefore, for a satisfactory solution of the differences between the parties, involving material increases in pay and a comprehensive revision of the rules relating to delays of terminals, overtime, etc., on the same basis as that arrived at by the engineers' arbitration committee.

Indications are that the award of the committee which arbitrated the differences between the Trunk Line railroads and their engineers will furnish a standard for the decision of similar questions in the future, and will, therefore, contribute largely to remove the constantly recurring menace of railway strikes. The findings of this Arbitration Board were made public in November. Its full report, however, has just come to hand and contains some noteworthy suggestions regarding the future settlement of difficulties of this character.

The Board states that the territory served by the railroads concerned in the dispute which they were called upon to settle, contained a population of over 38,000,000, or about 32 per cent of the total population of the United States. The railroads affected by these demands had an aggregate, in 1910, of 66,876 miles of main track, or 25.1 per cent of the total mileage of the country. The engineers employed by these companies had voted to strike, subject to the decision of the executive officers. If a strike had been called, the resulting damage would have been almost incalculable.

Upon this point the committee makes the following forceable observation: "An effective strike on these railroads, extending through an area that includes all New England, New York, New Jersey, Pennsylvania, Delaware, Maryland, Ohio, Indiana the lower peninsula of Michigan and a small part of West Virginia, would have had most disastrous effects upon the commerce and industry of this entire region, to say nothing of its effects upon the remainder of the country. Indeed, it would be difficult to exaggerate the seriousness of such a calamity. While no statistics on the subject are available, it is safe to say that the large cities of the East, if a strike had taken place, would have found their supply of many articles of food exhausted in a week. Of so important commodity as milk they have not usually more than a day's supply. Many of the people in these cities would, therefore, have been short of food if a strike had taken place. Assuming that no damage was done to their property, the loss of the railroads through cessation of business would have been enormous. The total operating revenues of the 52 railroads concerned amount to over $20,000,000 a week, and the net operating revenue to nearly $7,000,000 a week. The loss to the engineers would likewise have probably run into the millions."

This situation is a continuing one. At any time, the leaders of organized railway labor have the power to inflict almost incalculable damage upon the country. A general and protracted suspension of railroad transportation effecting such a wide area, would be a national calamity, comparable to the effects of war or pestilence. The four railway brotherhoods possess an absolute monopoly of the skilled labor necessary to conduct the business of transportation. Skilled railway operators cannot be replaced by non-union men; for locomotive engineers or firemen there are few substitutes; if they cease to labor, the trains cease to move, commerce comes to a standstill, factories close, business staggers and stops.

The practical result of a recognition by both parties to these wage controversies of the advantage possessed by railway labor, has been to greatly weaken the position of the companies in negotiating with their employes. Responsible heads of railway companies could not bring themselves to face the possibilities of a general suspension of traffic, if the most extreme concessions on their part could prevent it.

The recommendations of the Arbitration Board deal with this situation which they aim to make in the future, impossible. From the viewpoint of the public, they say, "It is an intolerable situation when any group of men, whether employes or employers, whether large or small, have the power to decide that a great section of the country, as populous as all of France, shall undergo

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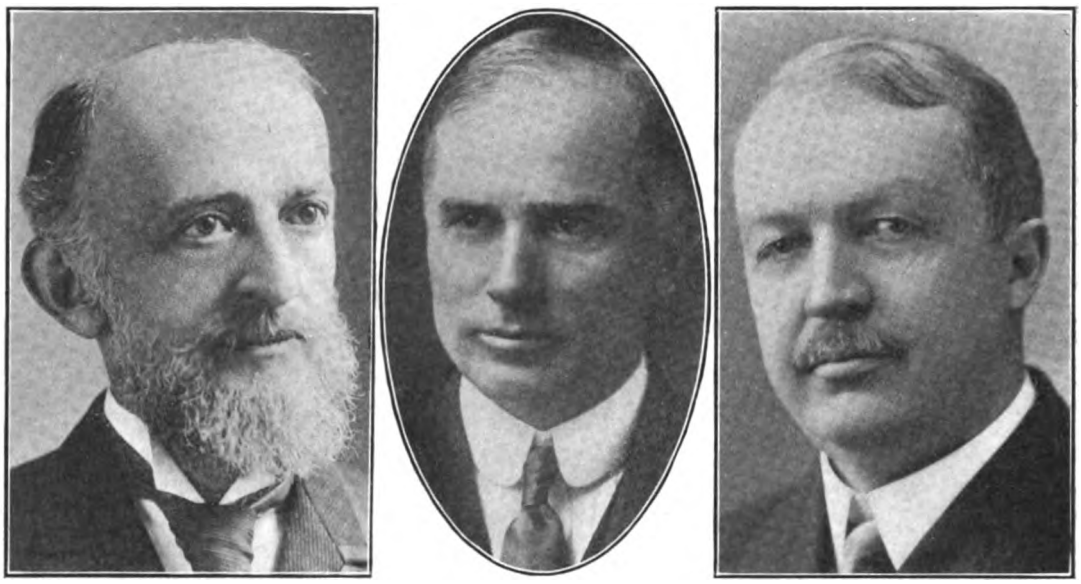

OSCAR STRAUS. DANIEL WILLARD. P. H. MORRISSEY.

Three Members of the Board of Arbitration Which Made the Awards in the Engineers' Wage Controversy. President Willard represented the Railroads, and P. H. Morrissey the Engineers.

great loss of life, unspeakable suffering and loss of property beyond the power of description, through the stoppage of the necessary public service." The Board finds a solution of the difficulty in an application to American conditions of the principle laid down by Premier Briand for the French ministry when they settled the French railway strike of 1910 by calling all railway employes to the colors, thus making them public servants. The military duties to which these employes were summoned consisted in the maintenance of the railway in normal working order and in obeying the orders of their official superiors. Disobedience would entail the punishment provided for by military law. The principle upon which this action was taken was "that public servants must be required to discharge their duties regularly and without interruption" and the Premier further declared that "if the Government had not found in the law that which enabled it to remain master of the frontiers of France, and master of its railways, which are indispensable instruments of the national defense, if, in a word, the Government had found it necessary to resort to illegality it would have done so."

The Board finds that a situation similar to that confronting the Ministry of France might have arisen in the United States if the contending parties in the engineers' controversy had failed to agree, and that in the interest of the public welfare, a basis must be established for the prompt settlement of such controversies without endangering the welfare of the public. The plan proposed is to have a continuous Board of Adjustment to which should be entrusted the duty of deciding in all cases where the railroads and their employes could not agree upon questions affecting wages, hours of labor and working conditions. This Board should have a corps of experts and statisticians and should be allowed to investigate each case fully. Furthermore, the decisions of this Board must be binding upon both parties.

Upon this point the Board says: "In the last analysis, the only solution—unless we are to rely solely upon the restraining power of public opinion—is to qualify the principle of free contract in the railroad service. A strike in the army or navy is mutiny and universally punished as such. The same principle is applied to seamen because of the public necessity involved. A strike among postal clerks, as among the teachers of our public schools, would be unthinkable. In all these cases, the employment, to borrow a legal phrase, is affected with a public use, and this of necessity qualifies the right of free concerted action which exists in private employments.

"However, if the principle be accepted that there are certain classes of service thus affected with a public interest, and men who enter them are not free concertedly to quit the service, then these men must be guarded in the matter of wages and conditions by public protection; and this it is believed can best be done through an Interstate Wage Commission."

It is not surprising that the representative of the engineers, on the Board, Mr. P. H. Morrissey,

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should have filed a minority report protesting upon the proposed application of the principle of railway arbitration. He does protest and most vigorously against a proposition which he says "strikes at a vital and fundamental principle affecting the legal and economic rights of railway employes. No fault can be found with the public interest in keeping open the arteries of commerce; indeed, the railway is an essential part of our modern civilization. It is dedicated to the public use, and laws regulating it in the public interest are now an established policy. But with all this, railways are privately owned, and the relation of the railway employe to his employer is private and not public. Whatever relation the railway employes may have to the public is secondary and through his employer. The railway hires, establishes the pay and regulations of employment, and exercises its prerogative as a private employer by dismissing the employe. In all this the public has no voice and very little interest. * * * * These conditions make necessary the organization of railway employes for their own protection and advancement, just as if they were engaged in any other industry. To take away from them their present industrial defense because of their relation to the public service, simply with the promise that they would be treated fairly by a wage commission, or other tribunal created for the purpose, is wholly inadvisable."

In spite of this hostile attitude of the leaders of organized railway labor towards compulsory arbitration of wage disputes in industries affected with the public interest, it is to compulsory arbitration of railway labor disputes that the United States must come, unless railway labor ceases to flaunt the menace of a strike whenever they approach a settlement of differences with their employers. It is this constantly repeated threat of a strike which has been effective in forcing wages in the railway industry so far above the level prevailing elsewhere; which has prevented such advance of railway earnings as would have given the necessary inducement in investment in railway securities; and which has for years transferred to railway labor the lion's share of increased railway profits. This strike menace must be removed; let us hope as a result of conference and conciliatory discussion, such as has characterized the negotiations between the Trunk Lines and the firemen, but if not by conciliation, then the public must take a hand.

If the leaders of railway labor are unable to see that they have a national obligation to perform, that, along with their vast power goes a corresponding responsibility, that they must not press their demands for higher wages to the point of making railway investments unattractive and restricting the necessary expansion of railway facilities, and, above all, that they must not threaten the public with the terrible calamity of a general railway strike, they will be made to realize in line with the recommendations of the Arbitration Board that there is a power in this country that is greater than the power of organized labor,—the irresistible power of an aroused public sentiment, and that the interests of no class—no matter how valuable the services performed by that class—can be allowed to stand in the way of the interests of the American people.

ANNUAL REPORT OF THE SECRETARY OF COMMERCE AND LABOR.

THE railway labor situation is reviewed in the fourth annual report of Secretary Chas. Nagel, of the Department of Commerce and Labor. This report contains two features of unusual prominence and interest. The first is the recommendation of the establishment of a Board of Conciliation to settle disputes between railway employes and managements, and the second is the condemnation of hasty legislation directed toward the establishment of a trade commission. The Secretary recommends the creation of a Board of Conciliation and Arbitration to be named by the President and confirmed by the Senate. Such a Board would have so much power and prestige that it is unlikely that any controversy would arise which it would not be able to settle peaceably even though its findings were not made obligatory upon the parties.

In reference to the proposal that a Trade Commission should be established, the Secretary points out the danger that such a commission "once created, would soon be vested with further powers. The disposition will undoubtedly be to give it authority to fix prices and conditions of operation similar to that which the Interstate Commerce Commission now exercises with respect to railroads and their rates. In other words, there is a strong tendency to disregard the fundamental distinction between a public carrier and a private enterprise."

THE ATTORNEY GENERAL ON CORPORATE REGULATION.

ATTORNEY GENERAL WICKERSHAM, in his annual report, also deals with the question of further corporate regulation. The Attorney General defends the Commerce Court, the abolition of which was attempted at the last session of Congress. A return to the old method of distributing litigation arising from the orders of the Interstate Commerce Commission to the District Courts, would, in his opinion, be injurious to the public and delay the administration of justice.

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He said: "In my opinion the Commerce Court has proved a far more satisfactory instrument for the determination of legal questions arising out of the orders of the Interstate Commerce Commission than the former method by which such questions were passed upon in the various Circuit Courts throughout the country.

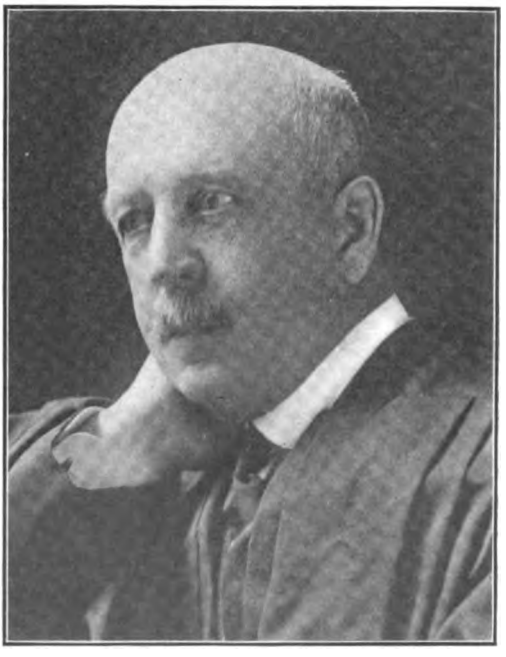
"It is much more expeditious; it has upheld the Commission in a larger portion of cases than did either the Circuit Courts or the Supreme Court; and it has granted temporary injunctions with less freedom than the Circuit Courts did. I believe it would be very injurious to the interests of the public as well as to the due, convenient and expeditious administration of justice to now return to the old plan of distributing the litigation among the many District Courts of the United States. In my opinion the criticisms which have been made of the Commerce Court are due chiefly to the fact that the scope of judicial review over the orders of the Commission has not yet been clearly defined either by act of Congress or by authoritative decisions of the Supreme Court."

In reference to the proposed amendments of the Sherman anti-trust law which would particularize the offences under the statute, the Attorney General, while admitting that "The experience of the past year in endeavoring to enforce criminal liability under the Sherman law has not been encouraging" is, nevertheless, of the opinion that the advocacy of amendments of the law which shall particularize different acts as constituting unlawful restraint or attempts at monopoly, has its origin, not so much with those who desire the enforcement of the law, as with those who are anxious to secure a safe means of its evasion. An enumeration by statute of the different practices which, in and of themselves, without regard to the circumstances of particular cases, should be declared illegal, would either go too far or not far enough." So far as protecting the public against the consequences of monopoly is concerned the Federal courts have found no difficulty in applying the terms of the law to meet and enjoin the continuance of any form of unfair competition which has resulted in imposing an undue restraint upon interstate commerce or which makes for monopoly.

THE ARCHBALD IMPEACHMENT PROCEEDINGS.

THE Attorney General's praise of the Commerce Court is particularly interesting at this time in view of the approaching termination of the trial of Judge Robert W. Archbald of that tribunal. Little that was not produced in evidence before the House Committee which investigated the charges against Judge Archbald has been brought out in the trial before the Senate. The fact has been clearly established that the Judge engaged in business negotiations with the railroads which were or had been suitors before his court. No evidence has been produced to

GEORGE W. WICKERSHAM,
ATTORNEY GENERAL OF THE UNITED STATES.



JUDGE ROBERT W. ARCHBALD,
UNITED STATES COMMERCE COURT.

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support the charge that he made any direct use of his official position to obtain an advantage in these negotiations. Graft has been defined as the obtaining of some pecuniary advantage or benefit through holding a position of trust. It is not necessary that the recipient of such an advantage should have directly used his position of trust to obtain it. If the advantage comes to him because of the position which he occupies, his accepting it, renders his motives open to suspicion. From the evidence presented, it is hardly doubtful thatJudge Archbald was invited into certain business deals because of the high position which he occupied and which made his influence valuable. There is no evidence, however, that he made an improper use of his position or that any litigant before his court gained or lost because of the Judge's interest in outside business matters.

ANNUAL REPORT OF THE SECRETARY OF THE TREASURY.

THE report of the Secretary of the Treasury is mainly taken up with the perennial subject of currency reform. Secretary MacVeagh contends that our currency system is responsible for panics and he says, "As long as our banking and currency system remains as it is the immeasurable disaster of a panic will remain a possibility. The system under which we are living will not only not prevent a panic, but after a certain point in the generation of panic conditions is reached will make it inevitable. So that, as long as the financial system created by our federal laws remains unchanged and unreformed, the Government will be exclusively responsible for the commercial, industrial and social disasters which flow from panics." Secretary MacVeagh also frankly recognizes that under the present system the treasury acts as the reserve agent for the banks, in that it collects during periods of easy money a large fund of cash which it can release into the channels of circulation when stringency arises. He justly considers, however, that this is an ineffective and clumsy substitute for a central bank whose advances shall not be made upon the arbitrary determination of a public official but in response to the demands of trade as evidenced in applications for loans.

ANNUAL REPORT OF INTERSTATE COMMERCE COMMISSION.

THE leading feature of the report of the Interstate Commerce Commission is its treatment of the question of accidents. "With the track and roadway conditions existing upon many railroads in this country the danger of derailments is ever present. Of thirty-one derailments investigated, fourteen were either directly or indirectly caused by bad track. * * * * It is believed that lack of men and material are responsible for bad conditions on many roads." A disquieting feature in the problem of accident prevention is the large number of train accidents caused by derelictions on the part of employes. By far the greatest number of serious train accidents are due to the failure of some responsible employe to perform his duties. "The Commission believes that as a rule there are no men who have a keener appreciation of their responsibilities than railroad trainmen and enginemen. However, changing conditions on railroads have increased the duties of employes and multiplied the chances of error. In spite of this, methods of discipline and regulations calculated to insure safety have remained practically unchanged."

The Commission might have added that many of the economies have been forced upon the railroads by their inability to obtain higher rates and by pressure from organized railway labor, which has resulted in largely increasing their wage bills, have made it impossible for them to do everything that their officials could wish in the way of making accidents infrequent. The question of discipline is also seriously complicated by the disposition of organized railway labor to take issue with railway officials in matters of fine, suspension and discharge.

The Commission criticises excessive speed. The aim should be to maintain safety rather than speed and adequate measures should be taken to compel low speed wherever conditions require it, whether schedules are maintained or not. The Commission strongly favors the general establishment of safety committees which have been organized on many roads to devise methods for increasing the safety of operation.

In a brief reference to the express rate inquiry the Commission claims that this investigation was the most important single piece of work ever done by it, and states that the express companies, on the basis of its findings, are now engaged in a comprehensive revision of their methods which will be of the greatest benefit both to themselves and to the public. "The most important prosecutions of the year," the report states, "may be said to be those which are based upon frauds perpetrated in connection with various transit privileges. Twenty-eight of these indictments have been returned, fifteen being against shippers, and thirteen against carriers. In every case they are based upon substitutions of commodities at transit points by which public rates were violated. The frauds incidental to the transit privilege are widespread, and further prosecutions of both carriers and shippers will probably be necessary before the violations of the act in this regard are discontinued."

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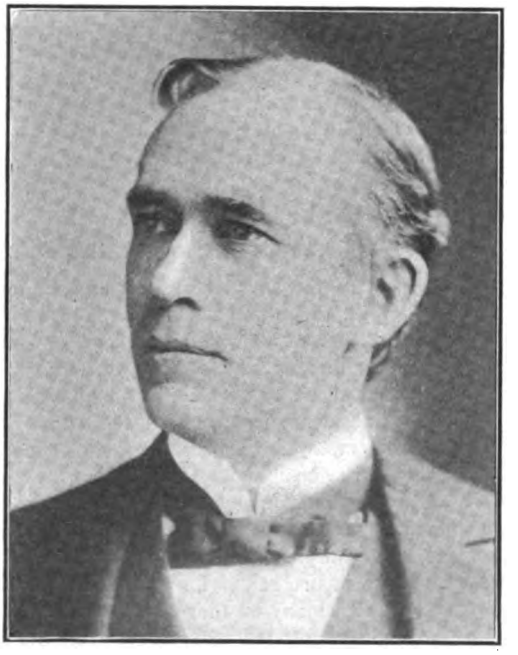
An examination of the list of indictments returned since December first, 1911, shows a large number for the offense of false billing and misdescription. This abuse, from which the railroads suffered for many years, the Commission has at last, after being repeatedly urged to do so, undertaken to regulate. A number of pleas of guilty have been entered in these cases and heavy fines have been imposed in certain instances.

For the first time in the history of the Interstate Commerce Act indictments have been returned for the offense of giving and receiving free passenger transportation for journeys within a State in consideration of particular routings of interstate tonnage. These were returned in November last in Colorado against certain carriers and shippers where the Commission had discovered that a systematic policy of distributing State passes to interstate freight shippers has been pursued.

Important decisions have been made during the year by the Supreme Court affecting the powers of the Commission. In the Lumber cases the orders of the Commission establishing rates on lumber from points of production along the Pacific Coast in the Northwest to Eastern destinations had been enjoined by the Circuit Court on the ground that this order was "so" palpably and gravely unjust and unreasonable as to be beyond the substance, if not beyond the form, of its power. The Supreme Court, to which the case was carried, held that the orders of the Commission are final so long as the Commission acts within its power and that an order, regular upon its face may be set



CHARLES A. PROUTY, CHAIRMAN, INTERSTATE COMMERCE COMMISSION.

aside only in case it appears that the rate is so low as to be confiscatory, or if rates were fixed contrary to evidence, or if the authority of the Commission has been exercised "in such an unreasonable manner as to cause it to be within the elementary rule that the substance and not the shadow, determines the validity of the exercise of the power." The court will not consider the expediency or wisdom of the order, or whether, on like testimony, it would have made a similar ruling. "The findings of the Commission are made by law prima facie true, and this court has ascribed to them the strength due to the judgments of a tribunal appointed by law and informed by experience."

In the Proctor and Gamble case the demurrage rules of the carriers provided that demurrage should accrue upon a car owned by private individuals until unloaded, even though the car might be standing upon the tracks of its owners. The complainants attacked this rule before the Commission, alleging that it was unjust in that it imposed demurrage upon their private tank cars after they had been returned to the possession of their owners. The Commission sustained the rule and dismissed the complaint. Proctor and Gamble appealed first to the Commerce Court and then to the Supreme Court. The question turned upon the right of the Commerce Court to review a negative order of the Commission. As the Supreme Court stated it: "In other words, the important question is: Is the authority of the Commerce Court confined to enforcing or restraining, as the case may require, affirmative orders of the Comm ission, or has it the power to exert its own judg-

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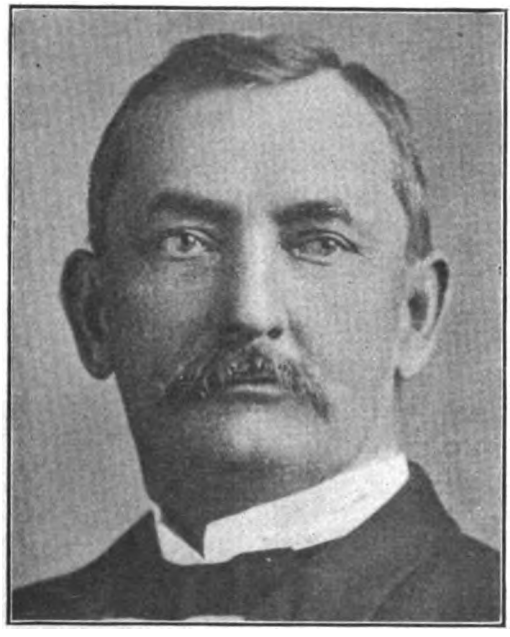
ment by originally interpreting the administrative features of the act to regulate commerce and upon that assumption, treat a refusal of the Commission to grant relief as an affirmative order and accordingly pass on its correctness. The Court found that the interpretation of its powers by the Commerce Court was incorrect, and that Congress in establishing the Commerce Court, did not intend to substitute that court for the Commission or even create a divided authority on administrative matters. This decision establishes the principle that the administrative orders of the Commission cannot be reviewed by the courts, in so far as they are within the delegated authority of the Commission, are not confiscatory and are not palpably arbitrary and unreasonable."

PHYSICAL VALUATION BILL.

THE Interstate Commerce Commission has repeatedly asked for authority to make a physical valuation of railroads. This authority is given to it in a bill passed by the House of Representatives on December 5th, and is as follows:

The bill provides that the value of railroad property shall be ascertained by means of an inventory of each system, which shall list and classify the physical elements in conformity with a classification of expenditures for road and equipment that may be prescribed by the Commission. The Commission is given authority to ascertain and report as to each piece of property owned or used



CONGRESSMAN WILLIAM C. ADAMSON, AUTHOR OF THE PHYSICAL VALUATION BILL.

by the railroads, the original cost for railway purposes, the cost and value to the present owner and what increase in value is due to cost of improvements.

The Commission also is instructed to ascertain any increases or decreases of capital stock in any reorganization of railroads and moneys received by any such corporations by reason of any issues of stocks, bonds or other securities, or from the net and gross earnings of such companies and how the moneys were paid out.

The Commission is further directed to report the amounts and dates of all retired bonds outstanding, the names of all stockholders and bondholders with the amount held by each and also the name of each director on each board of directors, the facts as to the connection of any bank or banker, capitalist or association of capitalists or financial institution or holding company with the ownership, manipulation, management or control of any stocks and bonds of any railroad.

Every railroad is required by the bill to assist in the investigation "as the Commission may require and direct." The proposed law is applied to receivers of carriers and operating trustees as well as managing directors and other officials. Any official who refuses to comply with an order of the Commission made incident to the inquiry is liable to a fine in the sum of $500 for each offense.

The passage of this bill is of great interest in view of the fact that the Supreme Court is expected shortly to hand down its decision in the Minnesota rate cases. In these cases the reasonable-

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ness of the rates established by the Minnesota Rate Commission are to be determined by reference to the valuation of the physical property of the companies involved and their ability on the basis of these rates, to earn a fair return on this valuation. The attitude of railway officials toward physical valuation has been greatly modified in recent years by the proof of a fact which is long believed, namely, that physical valuation so far from resulting in a reduction in railway rates would inevitably lead to an increase if the courts continued to follow the principle that the public service corporations are entitled to a reasonable return on the fair value of its property employed in the public service. Such valuations as have been made tend strongly to confirm this conclusion. The valuations made in connection with the Minnesota rate cases have already been referred to. On the basis of these valuations the Circuit Cour refused to allow a reduction in rates. The Massachusetts Validation Commission, composed of the savings bank commissioner, the railroad commissioner and the tax commissioner, studied for eight months the entire New Haven property of the New York, New Haven and Hartford, including railroad property and its investments, and reached the conclusion that the New Haven had assets amounting to $101,000,000 over and above all outstanding stock and debts. The Lehigh Valley has been carrying on for nearly a year a physical valuation of its property and the result is to put a value of $300,000,000 on the company's property used for transportation, exclusive of coal lands and collieries. Last year the company earned 3½ per cent on this valuation. The railroads have nothing to fear from a physical valuation, which is reasonably certain to protect them against further reduction in rates and which may even result in obtaining for them the higher rates which public necessity so urgently demands.

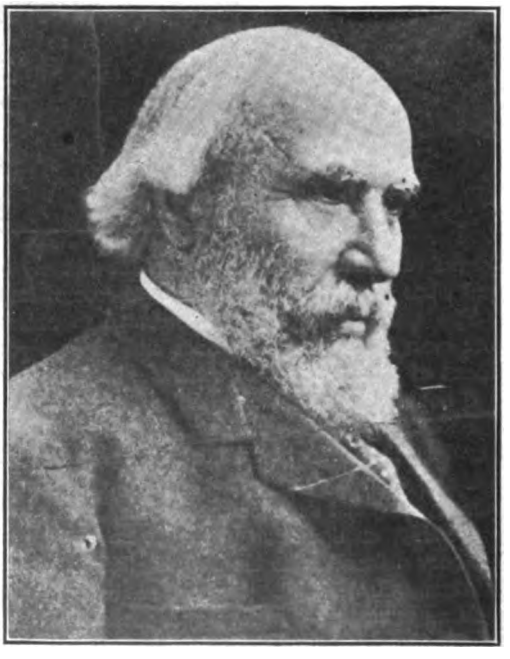
ANNUAL DINNER OF RAILWAY BUSINESS ASSOCIATION.

THE fourth annual dinner of the Railway Business Association was the largest and most representative in the history of that organization, whose members include most of the important manufacturers of railroad supplies. Among the guests were thirty-one railway presidents, members of the board of directors of important roads, more than 100 railroad vice-presidents, the presidents of large banks and the principal officials of corporations, such as the Steel Company, which are closely affiliated with the railroad business.

The principal address of the evening was worthy of the occasion and the audience, and was delivered by Mr. James J. Hill.

The subject of Mr. Hill's address was "The Country's Need of Greater Railway Facilities and Terminals." The tone of his speech was most pessimistic. He claimed and proved that railway fa-

GEORGE A. POST,
PRESIDENT OF THE RAILWAY BUSINESS ASSOCIATION.



JAMES J. HILL,
WHO DELIVERED NOTABLE ADDRESS AT FOURTH ANNUAL DINNER OF THE ASSOCIATION.

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cilities have not expanded in recent years to keep pace with the growth of the agencies which produce the traffic. Especially is this true of railway terminals, and in the speaker's opinion, these must be promptly enlarged, or the most serious consequences may be experienced. "Every interest in every community," said Mr. Hill, "should understand that the main need to-day of transportation and of the many activities connected with and dependent upon it, is an increase of terminal facilities. It is no exaggeration to say that the commerce of the country, its manufacturing and agricultural industry, its prosperity as a whole, and the welfare of every man in it who engages in any gainful occupation, can escape threatened disaster only by such additions to and enlargements of existing terminals at our great central markets, and our principal points of export as will relieve the congestion which now paralyzes traffic when any unusual demand is made upon it. Our natural material growth will make this their chronic condition in the near future unless quick action is taken."

Starting from this theme, Mr. Hill proceeded to develop the thought that the prosperity of the United States depended upon the provision of large amounts of money in the near future for the enlargement of existing railway facilities. He pointed out that this money could not be raised under existing conditions of railway revenue. The rate which railroads must now pay for money has advanced from 1½ to about 2 per cent in ten years.

Railway properties are already encumbered to the limit of traffic insolvency. "Securities have been consolidated, equipment trusts have replaced what are practically chattel mortgages on rolling stock, and money cannot be raised except for a short term and at high rates. * * * * Since the greatest need is larger and better terminals, the process of improvement will be costly. Since the sum to be raised must be reckoned in billions, the railroads, if they are to maintain their wage scales and their standards of efficiency, must be permitted to charge such rates as will enable them to pay interest on the additions to capitalization representing the money invested in new terminals and also accumulate a surplus sufficient to take care of the constantly arising demands for additions to the existing plant. * * * * Rates either permanently unchanged at the present figure or lowered by compulsion mean, in view of the existing emergency, nothing but ruin. That ruin will not be so immediate or complete for the railroads themselves as it will be for the business interests to which they will no longer be able to give a prompt and adequate service. It will be far reaching because its effects will affect every man, however humble, who is engaged in active industry."

ENGLAND AND THE PANAMA CANAL.

THE protest of Great Britain against the provisions of the Panama Canal bill passed by Congress, mainly rests upon the contention that the Hay-Pauncefote treaty was clearly violated when it undertakes "to remit, or refund, tolls on all American shipping using the canal," and it is also maintained that the same objection would probably apply to coastwise shipping because of the impossibility of framing regulations which would not result in preference to American shipping. Protest is also made against the exclusion of British ships owned by Canadian railroads, and the suggestion is made that the difficulties between the two governments, if it is found impossible to settle them by negotiation, should be referred to The Hague Tribunal. The objection to the remission of tolls on coastwise vessels is based upon the argument that through such remission, the revenues necessary to maintain the canal must be obtained by charging higher tolls on foreign ships.

The British Government does not object to the payment of subsidy and the argument above stated seems to have little merit. The American people, however, are not in favor of ship sub-

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sidies and there is little sentiment in favor of the remission of tolls to coastwise vessels. Most important, however, of the objections to the Panama Canal Bill in its present form, is the Hay-Pauncefote treaty, which stipulates that the shipping of all nations should be treated alike and that the canal should be free and open to the vessels of commerce and war of all nations without discrimination.

That the British view of the Panama Canal bill finds support from the Administration is seen in the annual report of Secretary of War Stimson, that the act of Congress granting free passage through the Panama Canal to American vessels engaged in the coastwise trade, be repealed. This recommendation Mr. Stimson makes on the ground that the legislation, as it now stands, will have the effect of putting an extra profit into the treasury of a special industry which already, by act of Congress, enjoys a monopoly and needs no further assistance. The Secretary of War urges that if it is not deemed wise to strike out this clause of the act, granting free passage to American ships engaged in coastwise trade, authority shall at least be given the President to withhold such exemption, in whole or in part until experience in operation of the canal may indicate the effects of such remission upon rates and traffic.

RAILWAY MAIL PAY AND THE PARCELS POST.

RALPH PETERS, CHAIRMAN, COMMITTEE ON RAILWAY MAIL PAY.

THE necessity of more liberal treatment of the railroads which was so strongly emphasized by Mr. Hill, in his recent address before the Railway Business Association, is clearly seen in the failure of Congress to provide, in passing the Parcels Post Bill which takes effect on January 1st, 1913, to make any provisions for additional compensation for the extra service. The rates for carrying the mail are fixed by contract with the railroads until 1916. The enlargement of the mailing privileges amounts in effect to a modification of the contract by the Government against the consent of the railroads.

The Committee on Railway Mail Pay which represents 268 railways operating 214,275 miles of line, in a public statement claim that the railways are underpaid for carrying the mail and that despite this fact the Postmaster General is not only seeking to have the present rates of pay reduced, but is planning to force the railways to transport without any compensation the enormous additional amount expected to be offered by the public under the new parcels post inaugurated January 1st. The carriers' statement further says: "The railroad pay is computed on the current rate of about eight cents per ton mile. According to the rate of 55 per cent allowed the railways in Great Britain, the railways' share of the $2.20 postal charge will be $1.21 as against only 13 cents in the United States. At present 11 packages weighing serially one to eleven pounds, or a total of 66 pounds, if sent by express in the first zone, 50 miles, would bear express charges of $3.05; the railroad's share on the basis of 47 per cent would be $1.43 while the express company

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would retain $1.52. Under the new parcels post law, the same package would pay the government postage of $2.20, out of which the railroads would be paid 13 cents and the Postoffice Department would retain $2.07."

The Merchants' Association of New York has prepared a bulletin which attempts to show the extent of the savings to the shipper by the new postal regulations. The comparison is made with the rate on express service. In the first zone of the parcels post, or within 50 miles of the centre, the parcels post rates are lower than the present express rates on packages weighing less than ten pounds, but when compared with the new express rates, fixed by the Interstate Commerce Commission, there is no advantage on shipments over six pounds, and the saving on a six-pound package is only two cents, and on a five-pound package only five cents. For distances between 50 and 300 miles, including such points as Portland, Maine, and Richmond, Virginia, the parcels post rates are lower than the present express rates, but when the new express rates become effective the advantage will cease on shipments to Portland at four pounds and to Richmond at five pounds. In zone five, covering distances over 600 miles and up to 1,000 miles, the parcels post rates are generally lower than the present express rates.

A distinct disadvantage in connection with the use of the parcels post is the requirement that packages must be delivered at the postoffice. It is certain that the Postoffice Department will receive a large accession of business as a result of the new regulation of business. The advantages of the parcels post have been so clearly exploited that although the more intelligent and the larger shippers will continue to use the express companies, because of considerations of receipt, risk and convenience, the multitude of small shippers, especially in the rural districts, and the retail stores, as well, will take advantage of the opportunity offered them by the Postoffice Department.

With the lower express rates soon to go into effect, and with the improvement in service which the express companies will be forced to make, it is not an unreasonable prediction that so far from being injured by the new regulations the large extensions in the number of small shipments which will result from the new parcels post regulation will, in time, react to the advantage of the express companies.

RAILROAD DEVELOPMENT IN 1912.

THE statistics compiled from official sources and published in the *Railway Age Gazette* in its issue of December 28th, show that one has to go back for fifteen years, namely, to 1897, to find a year in which so small a railroad mileage was built as in 1912, and one has to go back six years, namely, to 1906, to find a year in which as large a number of locomotives and as large a number of freight cars were ordered. The marked increase in activity along industrial lines during the last part of 1912 is shown by the fact that between two and three times as many freight cars were actually built in 1912 as in 1911, and a third more locomotives were actually built in 1912 than in 1911.

The official figures for the number of railroad receiverships, number of railroad foreclosure sales and the amount of block signal mileage, all give indications of the same conditions that are illustrated by the extraordinarily small amount of new railroad mileage built and the very heavy orders for new equipment, namely, that capital is refusing to go into new railroad enterprises, and that the prosperity for the last half of 1912 is taxing existing railroad facilities heavily.

Notwithstanding the fact that 1911 was considered a very unsatisfactory year for railroad building, there was 3,066 miles of new track built in that year as against 2,997 in 1912. Forty-one states are responsible for this latter increase as there were five States in which no new mileage was constructed. The largest mileage was built in North Dakota, in which 347 miles of first track were built. Texas was second with 336 miles and Oklahoma third with 242 miles. No other state reached 200 miles of construction during the year, while the majority of them were well below the 100 mile mark.

The total number of cars and locomotives ordered during the year were divided as follows: Freight cars, 226,195, passenger cars, 3,623 and locomotives 4,424. These all show heavy increases over 1911, in the case of freight cars being nearly double what they were in that year. In fact, in no year since 1906 has there been such a large number of freight cars ordered. In that year the total was 310,315. One also has to go back to 1906 to find a larger number of locomotives ordered.

Twelve railroads with a total mileage of 3,762 miles went into the hands of receivers during 1912. These roads had a total funded debt of $106,964,854, and outstanding stock amounting to $74,493,643. The three most important roads among this number were the Pere Marquette, the Denver and Northwestern and Pacific and the Kansas City, Mexico and Orient, both of which latter were independent companies that had attempted to raise capital through appealing to private investors.

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Contemporary Opinion

RAILWAY REGULATION

(From the New York Commercial.)

The salutatory to the annual convention of the National Association of Railroad Commissioners at Washington, was given by Hon. Charles A. Prouty, of the Interstate Commerce Commission. The trend of his remarks was full of interest and significance. The Interstate Commerce Commission has never been suspected of being too tolerant as relates to present railroad conditions, and still less so in dealing with railroads in the past. Commissioner Prouty's delivery for this reason was one to commend special interest

As a national problem, he pointed out that the United States was now in the position of controlling the railroads, owned by private capital, and held that in close restriction in many particulars by the public through its official agent, the commerce commission, so far as relates to interstate operation. What that body does in the larger relationship of railroads, the state commissions are charged with in questions of interstate importance. This binds them by a double set of checks and regulations. In both cases external power is or may be active even to the extent of making rates, should these be deemed unreasonable, or to the making of schedules. It is a tremendous power and the commissioner intimated that, injudiciously used, it might have an effect on the carriers which would be seriously detrimental to the country.

The United States, by its extraordinary growth in wealth and population, by its constant rescue of once waste territory from a condition of inutility to that of active production, is in urgent need of more railroads. Who, if our present railroad system is unwisely overloaded with harsh or unjust restrictions, will feel inclined to furnish private capital to fill the need? How can be found the requisite investment of money to extend, maintain, and further perfect the roads now in existence, or to construct the new lines which are becoming more and more exigent as problems of public necessity? If private individuals are frightened from taking the responsibility of those costly enterprises, who will do it and under what conditions can it be done?

That during the last two years there has been an extraordinary diminution in railroad building is indubitable. Yet this building must in some fashion go on. It is a very vital question, indicated Commissioner Prouty, and it must be solved within the next quarter of a century, on a solid and reliable basis, too, or this great nation would have to carry a crushing handicap.

Higher Expenditures and Lower Rates.

Referring to the current railroad situation, a prominent New York Financial House has the following to say:

"The possibilities for serious difficulties to the railroads as a whole have doubtless been exaggerated in their wage and rate situation of the past three years, but the expectations held, nevertheless, have eliminated a good deal of the buoyancy that might be expected in railroad shares and are probably in large part responsible for the fact that a number of the railroad shares, with sound earning power and dividends, have failed to reach market prices in 1912 equal to those of only 1911, not to mention previous years, despite the great increase in traffic and profits which are showing in the current fiscal year.

"It is estimated that if all the railroad employes of the roads classified as operating east of the Mississippi and north of the Potomac receive an increase in wages of the same proportion as that decided upon for the engineers, the total increase will amount to about $25,000,000.

"Yet for the same railroads the wage increase of 1910 amounted to probably $60,000,000, with the burden of which the railroads have two years following in which there was no increase in traffic. Should the present increase extend to all employes and amount to as much as the sum estimated the burden would not be comparable with that of two and a half years ago and could be largely absorbed in the great increase in traffic with which the railroad companies are now favored.

"At the same time it is, on the face of it, largely an imposition on the railroads to be compelled to bear an increased operating cost in the form of greater wage expense without any compensation except in the larger amount of transportation which improved facilities may make possible without a corresponding larger number of employes.

"The expectation that some assistance in the form of higher rates, unfortunate as this would be in helping to accelerate the circling tendency of higher costs generally, is very natural and must be considered especially from the standpoint of the railroads that are financially handicapped in securing economies resulting from improved facilities."

Rate Making.

E. Ireton, editor of the "Financial America" published in New York, in addressing the "Finance Forum," of that city, had the following to say in part regarding the effect of railway capitalization upon freight rates:

"Many are inclined to believe that the capitalization of a railroad company affects or is responsible in some way, for its freight and passenger rates. Railroads deny this and sound economists support them. Furthermore, the science of rate-making, if anything so empirical may be called a science, leans to the side of the carriers.

"If we view this question in a practical light we shall see the strength of the railroad's contention. If high capitalization could make high rates, all the railroads of the country would be capitalized on the same basis, which is not the case. For illustration: The Chicago Great Western, the Northwestern, the St. Paul and the Burlington all operate in the same territory. The capitalization of the Chicago Great Western is more than $100,000 a mile; that of the other roads about $30,000 a mile, on an average basis. Yet when we come to examine the rates charged by these roads, we find the Chi-

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cago Great Western's the lowest. What does this prove? Simply that railroad managers endeavor to earn the highest returns possible, and that the Chicago Great Western believes its interest lies in charging lower rates than its competitors. Managers establish rates with no thought of capitalization, but simply to hold their traffic and obtain new tonnage.

"If we take the four great trunk lines between Chicago and New York: the Pennsylvania, the New York Central, the Erie, and the Baltimore & Ohio, we shall have a more convincing illustration of the fact that freight rates have nothing whatever to do with capital. The Pennsylvania and the New York Central have paid dividends regularly for many years; the Baltimore & Ohio has been reorganized at least once; and the Erie more than once in recent years. The latter has not paid a dividend on its common stock in years, yet the freight rates on all four systems to common points have been and are identical.

"The capitalization theorists proceed on the fallacious notion that the value of a property determines the price which can be charged for its use. The reverse of this is the truth: the value of a property is determined by the price which can be charged for its use. Hence, high or low freight rates have nothing to do with a railroad's valuation. Its estimated earning power alone can determine that."

The Panama Canal as a Wheat Route.

(From the Toronto Globe.)

That the opening of the Panama Canal may, and probably will, have a very disturbing effect on existing trade routes has always been regarded as a matter of course. Ocean-borne commerce can be carried on at a minimum of expense, but the voyage around Cape Horn has been too long and part of it has been too rough to enable that route to compete successfully with the transcontinental railways. The Nicaragua Railway afforded a means of shortening the ocean voyage, but at the expense of two transhipments. When the largest vessels are able to pass from one ocean to the other without breaking the bulk of their cargos a new element of potent influence will be introduced into traffic conditions.

New Light on the Canal Policy.

(From the Boston Transcript.)

The annual report made by Secretary of War Stimson, is in at least one respect the most illuming and important State paper of the new administrative year. He does not accept the Panama Canal act, or at least that feature of it providing for remission of tolls on American coastwise vessels, as an irrevocably closed incident, but recommends that consideration of it be reopened and tolls reimposed. In this recommendation he hardly takes the trouble to argue the question of the ethics of the situation. He bases his objections to our policy, so far as it has been outlined, on purely economic grounds. He has learned through expert investigation, set on foot by himself, that "a repayment or a remission of canal tolls is not necessary in order to enable American vessels engaged in coastwise trade to successfully meet such competition as they will be subject to either from the transcontinental railroads or foreign competitors." Notwithstanding the fact that they are at present paying at the rate of $4 per net registered ton over the Panama Railroad, a much larger rate than has been suggested as probable for the canal, their business "is rapidly increasing in volume and strength."

If that is so, and we have no doubt that the facts have been stated with a fair degree of accuracy, we stand in the position to-day of proposing to enter upon a policy of very doubtful propriety without even the plea of necessity in extenuation. On the other hand, such a system of gratuities would either make the other users of the canal pay higher rates or menace the ability of the Government to meet the cost of maintenance and the interest charges. In other words, we are likely to do an injustice to curselves as well as to foreign nations, the only result being an increased profit for those who are doing a profitable business already and one that will enjoy still further advantages as soon as the canal is open to operation. To insist upon this attitude under such conditions would be to lay a foundation for future trouble, because preparing a situation which the American public would not indefinitely endure.

The Responsibility for Poor Railroad Equipment.

(Baltimore News.)

The Interstate Commerce Commission's report to Congress, shows that out of 8215 derailments reported during the year, 5724, or almost 70 per cent., were caused by defective roadbed or equipment.

Such conditions may perhaps be explained by the fact that improvements in roadbed and equipment have not kept pace with the extraordinary increase in traffic and weight of trains. But this merely begs the question of responsibility. Are or are not the roads allowed to charge high enough freight rates so that they can meet all the growing demands upon them and still earn a legitimate return on their actual investments?

On the basis of their nominal capitalization remarkably few roads earn to-day an excessive amount of money; and in so far as their investments were based on older traffic conditions, rendered obsolete by the public, it is clearly the public's duty to allow them compensation for improvements. But despite the elements other than physical value which enter into the worth of a railroad company's securities, it would seem almost impossible to say on the basis of net profits alone whether sufficient such compensation is now being allowed, until a physical valuation of the company's properties has been made.

The railroads say they are not earning enough; the shippers say they are. Meanwhile, owing to the selfishness of the one or the mistaken contention of the latter, not enough money is going into the roadbeds and equipment to keep them in shape. The public has a decided interest in the correct placing of the blame.

Avoidable Railroad Wrecks.

(From the Chicago Record Herald.)

In a statement on recent railroad accidents, Interstate Commerce Commissioner Clark says:

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"Most of the wrecks may be put in the class of avoidable accidents. Poor rails, speed craze and human negligence are the causes." He says the commission has made recommendations for safety, but it has no power to enforce them.

Intelligent railroad managers, of course, are anxious to avoid and to lessen the number of accidents. The leading roads of the country are now paying much attention to the rail question; new shapes are being brought into use on some lines; the question of chemical composition is being studied carefully; old rails are being replaced with new ones extensively in the rehabilitation now going on. Slower schedules have been made for the fastest trains between Chicago and New York, and it is probable that other "flyers" will be run at lessened speed in the coming winter.

Negligence will always remain a formidable cause of railroad wrecks. To minimize it is a problem involving more than safety appliances or disciplinary rules. The railroads should consider safety first, and the public should not demand the unsafe. The roads must lead in any change, and Commissioner Clark's statement should spur them to greater efforts. In any case, the Commerce Commission should be given greater power to enforce safety.

Waterways Versus Railways.

Dr. Harold G. Moulton has recently published through Houghton, Mifflin Company, the results of an exhaustive investigation concerning the relative value of the waterways and railways of the world. His treatment of the subject proved so excellent that he was awarded the Hart, Schaffner & Marx prize of $1,000 in 1911. Dr. Moulton points out that much of that which has been published in recent years concerning the value of waterways in comparison with railroads has been vitiated by the precedent point of view of railway men or the view of the advocates of the waterways construction. The conclusion reached by Dr. Moulton is that the railroad is in most instances cheaper and more adapted for modern transportation than waterways, with the exception of large rivers or great lakes, and that the present demand for building new waterways is not based on sound knowledge of the economic facts involved. The fact is brought out that if the Government constructs and maintains a waterway the taxpayer must pay for the same, the burden being merely transferred from one person to another. The burden of proof is certainly on the advocates of new waterways in the light of the decline of canals and the failure to use present waterways in this country. The work is an admirable presentation of a much agitated and debated question.

The State and the Railroads.

(From the Boston Transcript.)

From several sources, which the public is disposed to respect, there has come in the past fortnight the suggestion that a hopeful solution of the transportation problem in this State would be the acquisition by Massachusetts of the Boston & Maine Railroad. It is assumed that that would end the monopoly, so-called, and put the railroad business of this section upon a competitive basis. Unfortunately, the suggestion halts before it reaches the vital point of such a proposition. It is not certain, in the first place, that the State would find the ways greased for obtaining possession of the system. The greater part of the territory served by the Boston & Maine is outside the jurisdiction of Massachusetts. Would the other States consent, unless by the exercise of pressure which they would resent, to the placing of their transportation interests in the hands of this Commonwealth?

But supposing the first step could be taken without serious opposition, what would we do with our white elephant? We have undertaken to conduct a railroad business, in a previous generation, that was entirely within our jurisdiction, and were only too glad to escape from the responsibility with loss of both profit and prestige. Yet the situation in that instance was much simpler than it would be in the one proposed. Those who are pointing the way out of our troubles should do more than lead us a little way into the wilderness and leave us there without guide or compass for further progress. The State has responsibilities and burdens enough as it is without undertaking to regulate a situation that concerns all New England.

The factors in the problem, on the side of the public, are safety, speed, promptness of service and rates. On the side of the corporations are dividends and their right to make rates that would meet the increase in operating expenses. These latter have recently advanced faster than the concessions of the Interstate Commerce Commission, though there are signs that the latter is beginning to recognize the urgency, and perhaps in some cases the justice, of the demand.

Railroad Consumption of Iron and Steel.

(From the Iron Trade Review.)

The re-establishment of railroad buying upon a large scale furnishes further proof of the claim made in recent years that the railroads do not, in this age, consume nearly as large a percentage of the product of the iron industry as they did many years ago, when the railroads were being built and when the consumption of iron for other purposes was relatively limited. Railroad buying fell off in 1907, and was very small indeed in 1908. In that and subsequent years, there were those who were continually sighing for the "good old days," when the railroads consumed "50 to 60 per cent" of the iron industry's product.

Attention was then called to the fact that owing to great changes in conditions, such a proportion could never be restored. On the one hand, the railroads were built and would expand chiefly by way of increasing their facilities, while on the other hand iron and steel products had come to be used in a great variety of ways not thought of in the eighties, when the record railroad mileage was built. Railroad facilities, indeed, would not need to be increased largely, unless by an expansion in general business activity which would consume much iron.

Predictions are made that next year's rail production will break the record made in 1906, a trifle under 4,000,000 tons, but even if so, the total steel production will be very much larger than that of 1906, so that in any event the proportion of rails will be smaller.

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Railway Valuation as Proposed in the Adamson Bill

By H. T. NEWCOMB,
OF THE BAR OF THE DISTRICT OF COLUMBIA.

H. T. NEWCOMB.

THE long mooted proposal for a Federal valuation of the properties of interstate railways has at last reached the stage that a bill providing for such a valuation has passed the House of Representatives by a decisive vote and is pending before the Senate Committee on Interstate Commerce. While, even though the Senate should favor the general idea involved in the Adamson bill, it would be premature to assume that it will become a law without important changes,—some consideration of the measure in its present form may be helpful.

The valuation contemplated by the bill is plainly not the so-called "physical valuation" which, in spite of manifold and inherent absurdities, for a while appeared to have won favor in the minds of those who have been most active in the recent extensions of the principle of public regulation. Instead of such an inadequate and unconvincing valuation, the bill directs the Interstate Commerce Commission to "ascertain the value of the property" used "for the convenience of the public," and proceeds to indicate recognition of organization, established relations with those in control of traffic, good will, etc., as elements of value by requiring the report to include the following five items, as to each "piece of property owned or used":

1. Its original cost for railway purposes.
2. Its cost to the present owner.
3. Its value to the present owner.
4. The present estimated cost of its reproduction.
5. The increase in value due to cost of improvements.

From the fact that the bill provides for an inventory of property and for the employment of engineers, as well as for a classification of physical property in conformity with the present accounting system of the Commission, it would seem to have been thought a "physical valuation" would be made as a preliminary to the ascertainment of the facts required to be reported. But whatever the nature of the process contemplated or carried out it is evident that when the Commission reports "Value to the present owner," it will report a fact not derived from or effectually controlled by the inventory values of separate elements of property. Before this report can be formulated, for any carrier, the value of its property as a whole will have to be ascertained and this ascertainment must necessarily be entirely independent of any previous inquiry concerning the separate value of the parts. In other words, if the Commission proceeds by the inventory method, it will obtain certain intermediate results which must be compared with the results of an entirely separate and distinct inquiry as to actual value in use. And in every case the former must be corrected so as precisely to coincide with the latter, no matter how extensive the correction may be. Hence it follows, that the inventory process is wholly superfluous, if the end desired is only that indicated by the bill. As the Interstate Commerce Commission well said in its first annual report, the value of a railway never depends upon its first cost or the correct cost of reproduction, but depends, instead, upon its organization; its location with reference to traffic, the competition to which it is subject, or, briefly, upon its past, present and prospective net receipts after paying operating expenses and taxes.

The valuation reported as the result of the inquiry now provided for is to be corrected from time to time whenever changes in the property or the conditions controlling its operation make correction necessary and the value ascertained by the Commission is to be prima facie evidence in all proceedings under the Act to regulate Commerce and amendments.

Doubtless this provision would make applicable to these conclusions of the Commission the same presumptions of accuracy that are now recognized in favor of the results of its other investigations when they are conducted in accordance with law. Such conclusions of fact are not final, in the sense that opportunity to overcome them is denied, but they are entitled, as evidence, to that special weight properly pertaining to the conclusions of an expert and experienced body especially created to make such inquiries. This is, of course, something more than is ordinarily intended by the term "prima

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facie evidence," and should the valuation measure pass in its present form, the claim may be made that, as that term does not now appear in the statute with reference to the findings in an investigation of a complaint, it was not the intention of Congress to give equal probative force to the conclusions as to value. In the opinion of the writer such a contention would not be supported by the language or form of the Adamson bill as it passed the House of Representatives.

Some of the absurdities involved in the notion that railway property can have any other kind of value than that attributable to its earning power were brought out in the debate in the House. One member, who began his discussion by pronouncing in favor of the co-called "physical valuation," was plainly embarrassed when some one called his attention to the much higher cost of the Pennsylvania system's route between Baltimore and Washington, as compared with the route previously built and owned by the Baltimore and Ohio and to the further fact that commercial conditions require both lines to make the same charge to all patrons. His final answer involved the suggestion that it might be necessary to adopt "uniform standards of physical valuation for all railroads that were competitive," a suggestion which, explained by the context of his remarks, it is quite evident, would do away with the whole idea of inventory valuation.

The following quotation from a speech on the measure by Representive Mann, of Illinois, suggests a result of the inquiries which he is not alone in anticipating:

"The Illinois Central Railroad, which comes into the city of Chicago, along the lake front, with which most of you are familiar, came in over the lake bed and cost practically nothing at the time. The value of that right of way to the present owner of it amounts to millions upon millions of dollars now. It could not be replaced to the Illinois Central probably for $50.000.000.

"There is not a railroad in the United States, probably, passing through towns that have grown in size since the road was constructed where the present value of that property to the railroad company for its use does not excxeed not only the cost to the railroad company, but its capitalization, which it goes into and helps make up."

It is a serious objection to the Adamson bill, and one which the Senate ought to remove, even though it makes no other changes in the bill, that it imposes the burden of a new and extremely arduous investigation upon the already overworked Interstate Commerce Commission. By the enactment of the Hepburn law six years ago, that body was given duties and powers more extensive, difficult and important than those borne and exercised by any other governmental agency in the world, not excepting the Parliament of Great Britain, or the Congress of the United States. In 1910, the Mann-Elkins act multiplied its burdens at least by two. For two years, although the Commission has issued opinions and orders which no one believes to have had the actual and deliberate consideration of its members and although it has rarely sat as a body and has delegated most important investigations to its appointees, its docket has been crowded with cases far beyond its capacity, even by the methods indicated, to investigate and report. It is notorious, that it would be impossible for any one or two men even to read the mass of testimony annually taken by the Commission and its agents and there has been no contradiction of the assertion that it has been found necessary to entrust to clerical employees the exercise of many of the delicate duties and tremendously important functions which the law says shall be performed by the Commission. To a very large and increasing degree the statutory regulation by the Commission has thus become regulation by the employees of the Commission—that is by persons, who, however able and efficient, are not those upon whom Congress conferred these great powers or to whom the public or the railways could trace responsibility for acts due to misunderstandings of the law or the facts, or—if that should be possible—committed as the result of narrow and unjustifiable prejudices or even from improper motives.

The statement of these incontrovertible facts ought to be sufficient to establish the desirability of referring the long and difficult investigation proposed by the Adamson bill to a body of experts especially created for that purpose. To entrust it to the Interstate Commerce Commission is, in substance and effect, to entrust that body with authority to select other persons to perform the work and nothing more, for if the Commission were to undertake a more than nominal supervision of this vast inquiry it would have to abandon for a long period many of its other and regular duties. In other words, the alternative is between the appointment of a separate agency, the members of which would naturally be nominated by the president subject to confirmation by the Senate, which would have standing and dignity commensurate with the magnitude and difficulty of the work of valuation and the assignment of that task to subordinates of the Commission, who might be especially selected and qualified for the task.

Moreover, the Commission, capable as it is in many directions, is not qualified for the work of valuation, even if its other duties could be brushed aside so that it could be undertaken. The members of the Commission become by their experience, experts in matters of traffic and rates and practices affecting both, but not in the wide field of railway construction and finance. There is nothing in their duties to qualify them as experts in the problem of railway engineering or in those with which the financial departments of the railways are required to deal.

Any valuation of railway property must, plainly, be the work of engineers and of persons who are expert in translating current and prospective net income into terms of capitalized value. This is so obviously true and the investigation proposed is of such permanent and far-reaching importance that it seems strange that there could have been any other idea than to entrust it directly to a board composed of persons of the requisite attainments and of the highest professional standing. Any other course is unworthy of the Congress of the United States, as a body of practical legislators, and ought to be disapproved by the Interstate Commerce Commission.

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The Future of American Railways

JUST REGULATION OR GOVERNMENT OWNERSHIP.

By SLASON THOMPSON,
DIRECTOR, BUREAU OF RAILWAY NEWS AND STATISTICS.

SLASON THOMPSON.

THERE is nothing more important to-day than by education and the spread of ideas such misunderstanding (between different classes of citizens) shall be disposed and done away with, and that all Americans shall come to that spirit of popular government in which every American desires the prosperity and the happiness of every other American.—Senator Root before the New York Chamber of Commerce.

In the campaign of education, so essential to the prosperity and happiness of the American people, there is nothing more important than the enlightenment of the public mind as to the process by which the railways of the United States are being harassed and partially crippled in providing adequate, efficient and safe transportation. Through the enactment of the Act to Regulate Commerce (1887) and the Statutes supplementary thereto, the Interstate Commerce Commission has been invested with powers that make it the arbiter for good or ill of the fate of our railways, which at the present writing are still the private property of American citizens irrevocably dedicated to public use.

The strength and weakness of this form of railway regulation is that it bestows limitless authority with well-nigh absolute freedom from accountability. What the Commission says generally goes without "recall." It is invested with the widely divergent powers to investigate, to prosecute and to adjudge in all affairs relating to transportation by rail, and it has always resented any interference with its findings by the courts, not excepting the Supreme Court of the United States. Its findings of fact have become well-nigh unappealable. From its first organization the Commission has been composed of men of high intelligence, exceptional industry and, the writer believes, of truly patriotic intentions. But in the course of years, and with the extension of its authority, the attitude of its members has gradually fallen into a groove at variance with the principle enunciated by its first chairman, the late Judge Cooley, that "The Act to Regulate Commerce was not passed to injure any interests, but to conserve and protect. It had for its object to régulate a vast business according to the requirements of justice." It was his hope and expectancy that under the corrective rulings of the Commission "the management of the transportation business of the country ought to be and in time no doubt, would be restored to public confidence."

Judged by the trend of its decisions during the last decade and a half, the Commission has almost entirely lost sight of another principle formulated by Judge Cooley, that: "The railroads provide for the people facilities and conveniences of a business and social nature which have become altogether indispensable, and the importance of so regulating these that the best results may be had, not by the general public alone, but by the owners of railroad property, also, is quite beyond computation."

Sympathetic as well as wise and just regulation of this "indispensable" industry was always present in the minds of the early administrators of the Act to Regulate Commerce. By almost imperceptible degrees let us see how far it has altered both in disposition and terms. The chief physical, financial and operating condition of the railways under the chairmanships of Thomas M. Cooley and the Hon. Chas. A. Prouty can be briefly summarized and contrasted in table found at top of following page.

It is not germane to the purposes of this paper to comment on this remarkable exhibit of the development of the "indispensable" railway industry during the period of its regulation by the Interstate Commerce Commission, further than to say that it has been achieved by economies in capital expenditure, in road equipment and management that are the wonder of foreign experts and that have finally reached the limit of adequate service and safe operation. The capital investment shown in this statement is exclusive of over $2,000,000,000 that has been expended on additions and betterments out of income and many more unidentified millions that have gone into the plant through operating expenses.

It is because the railways have reached the limit of absorbing all the increased costs of operation and of regulation by economies, that have made the above exhibit possible, that the time is ripe to call upon the Commission to

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	1889.	1912.	Increase per cent.
Miles of line	153,385	248,000	62
Miles of track	195,958	367,000	89
Net capitalization	$7,366,745,000	$15,500,000,000	110
Gross Revenues from operation	964,816,000	2,873,279,000	177
Expenses of operation	644,706,000	1,990,061,000	209
Taxes	27,590,000	121,797,000	341
Net income from operation	292,520,000	761,421,000	160
Passengers carried one mile	(a)11,553,820,000	33,700,000,000	192
Freight tons carried one mile	(a)68,727,223,000	261,000,000,000	280
Average receipts per pas. mile (cents)	(a)2.16	1.97	(d)9
Average receipts per ton mile (mills)	(a)9.22	7.57	(d)18
Employes number	(a)704,743	1,760,000	150
Employes compensation	(a)389,785,000	$1,260,000,000	223
Locomotives, weight on drivers (tons)	1,161,440	(c)4,672,700	302
Freight cars, capacity (tons)	16,597,700	(c)81,096,724	388

(a) Figures for 1912 computed from known data.
(b) Figures for 1889 figured on official data for 1895.
(c) Figures for 1911.
(d) Decrease.

drop the role of prosecutor and join hands with the railways in rehabilitating the transportation industry on a basis of just and adequate rates. The Commission does less than half of its duty when it guards the public from illicit, unequal and unreasonable railway rates, or any other illegitimate and unlawful practices. The major part of its duty, within the powers it now possesses, should consist in so regulating the railways that they may fulfil the myriad transportation requirements of a continent peopled by the most exacting travelers and traders on the face of the globe. That this is impossible on the present scale of freight rates and railway mail pay co-incident with higher wages and dearer supplies, does not admit of question. "Hitherto," as the "New York Herald" recently said: "the Commission has dealt with the railways as if it held a brief for the shippers." This has grown out of a condition foreseen by Judge Cooley when he wrote: "There is a sense of incongruity between the prosecuting function, involving as it does detective methods and an attitude of hostility, and the judicial function, rightly expected to require impartial and just investigation and decision of controverted questions of law and fact." As prosecutions have become incidental to railway regulation, it is only proper that the attorneys for the Commission should sit, at least half of the time, on the railway side of the table. Unless the transportation needs of the public are given precedence over the selfish pleas of shippers in railway hearings, the situation must become so intolerable both for the railways and the public that a remedy will be sought in government ownership and operation, when fares and rates and regulations will be adjusted to expenses, improvements and fixed charges or the inevitable deficit will be made good by general taxation.

You take my house, when you do take the prop
That doth sustain my house; you take my life,
When you do take the means whereby I live.—
Merchant of Venice.

Let us look the facts in the face. What are the props that sustain the railways of the United States; the means whereby they live? Their sole means of living, to do the fetching and carrying for a people growing at the rate of a million and a half a year, is the revenue from four sources, in the following proportions:

For carrying	freight	70 per cent
" "	passengers	25 " "
" "	mail	2 " "
" "	Express	3 " "
Total		100 per cent

Roughly speaking, these ratios have persisted through the years of regulation except that the proportion from freight has been generally under 70 per cent., and the order of those for mail and express has been reversed, mail which now yields under 2 per cent. of all railway revenues has at times been over 3 per cent.

These four sources, speaking generally, are the sole "props" for the maintenance, operation, improvement and extension of the 250,000 miles of railway that by trunk lines and thousands of smaller branches extend into every quarter of the republic. There are still remote corners crying for rail facilities. When the sum of the revenues from these sources becomes inadequate to pay operating expenses and taxes, to take care of depreciation and obsolesence, to provide facilities in advance for increased traffic and a reasonable return for the value of the property, then the railways must deteriorate and finally fail to meet the requirements of the public for whose social and industrial welfare they are indispensable. Like a tree, when the railways cease to grow they begin to die.

During the past ten or fifteen years what has the Interstate Commerce Commission done to preserve the railways from deterioration through lack of nourishment? Where has it stood for the industry committed to its keeping against the assaults of every selfish interest that has seen fit to prey upon it?

Railway Dependence on Freight Rates.

Take the case of freight rates from which over two-thirds of railway revenues are derived and which admittedly bear the burden of unremunerative passenger, mail and express rates. It is an undisputable axiom that there is no American freight rate which is unreasonable high per se. It is equally indisputable that the average of freight rates in the United States twenty years ago was low, unreasonably low, lower than those then or since charged by any of the railways in the principal countries of the world. Moreover the wages paid by the railways of the United States twenty years ago were at least double those paid in any European country, and they have more than retained that disproportion.

A glance at the table given above shows what has happened to American freight rates since 1889. Under the persistent hammering of shippers, and rival communities, by 1899 they were gradually forced down to 7.24 mills per ton mile, without the Commission interposing a warning remonstrance. On the contrary, when the railways sought to check the ebb of their

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revenues by a slight advance, the Commission led the assault that resulted in its being invested with authority to fix (i.e., reduce) rates. Since 1901, the average of freight rates has remained fairly steady around 7.5 mills per ton mile. But this has been due almost wholly to the fact that as traffic becomes denser it becomes more varied, and articles that yield a higher rate increase slightly in proportion to the total tonnage. Had it been otherwise the level of the average freight rate must have yielded to the uninterrupted line of the Commission's decisions declaring existing rates unreasonable and ordering reparation and reductions. Out of 942 formal decisions handed down by the Commission in the three years 1909, 1910 and 1911, no less than 573, or over 60 per cent., granted reparation or reductions, and not one adjusted a disputed rate by advancing the lower rate. The difference was never split in favor of the railways. In one decision in 1911, the Commission laid down the rule that it was "without power to order an increase in any rate." In another noted case, interstate rates into Texas were forced down to prevent discrimination as compared with lower intrastate rates fixed by the Texas State Commission. Throughout all these decisions and thousands upon thousands of informal and reparation orders one increasing purpose seemed to run—the deflection of railway revenues.

It only remained for the passage of the Mann-Elkins Act (1910) to place the freight rates of the railways completely at the mercy of the Commission by investing it with power to suspend and prohibit any or all advances. Exercised with anything like a wise and broad appreciation of the vast interests involved, this authority was necessary to the effective regulation of the railways as public utilities. But in the celebrated cases in which the railways merely sought to advance rates sufficiently to take care of a liberal increase in wages, the Commission made little pretense of a judicial or open mind. Its counsel sat cheek by jowl with the attorneys for the shippers and assisted in every way in prejudicing the investigation adverse to the pressing needs of the railways. All sorts of irrelevant evidence was heard and Mr. Brandeis, of Boston, with as much practical experience of railway operation as a crowing rooster has of laying eggs, was permitted to exploit his million-dollars-a-day economy proposition without an explosion of ridicule and contempt from the Commission that would have pricked the dazzling bubble as it issued from his versatile lips. The Commission listened to reams of immaterial testimony of over-capitalization, watered stock and misdeeds of manipulators a quarter of a century old, and finally concluded that the railways did not need the advance they sought. Commissioner Lane in his opinion cited as proof that the railways as a whole had never before prospered as they did in 1910, that "the actual amount paid in dividends (that year) had increased to $405,000,000."

This brings us up against the fact that throughout its existence the Commission itself has been misled and deceived by its own statistical bureau. "The actual amount paid in dividends," as stated by Commissioner Lane, was predicated on an exhibit presented by the Commission's attorney, for whose use it was prepared by the Commission's bureau of statistics.

The final printed report of that bureau for the year ending June 30, 1910, shows that this fictitious exhibit of the prosperity of the railways in that year was composed of the following items:

Operating Roads.	
Dividends from current income	$283,411,828
Dividends from surplus	67,790,444
Lessor Roads.	
Dividends from current rentals	35,788,530
Dividends from surplus	18,674,561
Total	$405,665,363

So it appears from the Commission's own official report that dividends from current income in 1910 amounted to only $319,200,358.

Nor is this all. It further appears that the current income from which these dividends were paid was swelled by no less than $202,473,512 received by the operating roads in dividends and interest paid on stocks and bonds owned by the railways themselves. Of this $111,828,500 was included in the $319,200,358 dividends from current income. Further analysis of the income account of the railways for 1910 shows that considerably less than $200,000,000 of the $405,771,416 paid in dividends that year were derived from transportation revenues. The remainder consisted of duplications due to intercorporate payments, which for eighteen years have vitiated all the Commission's statistics and lent a fictitious color to the spectacles through which it has been wont to take an exaggerated view of railway profits.

If in 1910 the railways had been able to pay $405,000,000 or $305,000,000 in dividends of our current revenues from transportation, the Commission would have been fully justified in forbidding advances in freight rates without a hearing. But it lent an over-credulous ear to the shippers and its own misinformed attorney.

The Passenger Rate Situation.

Next in importance to freight rates as a source of revenue come passenger fares. It will be admitted that passenger traffic should be self-supporting. But on a majority of American roads passenger traffic is so sparse that it scarcely pays its share of the cost of operation. This brings about a condition where the freight rates have to pay a portion of the freight for carrying passengers, which Commissioner B. F. Meyer, when Railway Commissioner in Wisconsin, declared to be "a species of piracy," especially as "Low freight rates are vastly more important to the people of the State than low passenger rates." In that case the Commission, after an exhaustive inquiry, much as it was inclined to a two-cent a mile maximum, was constrained to establish two and one-half cents as the limit.

Six years ago a wave of two-cent per mile passenger fare legislation swept over the States, irrespective of whether the conditions justified it or not. Wherever subjected to judicial investigation, these statutes have been condemned on the ground of their confiscatory nature. Moreover the statistics of the Interstate Commerce Commission showed that between 1907 and 1909 they had reduced the average receipts of all the railways of the United States from 2.014 cents per passenger mile to 1.928 cents. Negligible as such a fractional decrease may seem, it cost the railways over $3,000,000 in passenger receipts in 1910 and shifted just so much more of the burdens of operation, taxes and charges

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to the freight rates. Accompanying this two-cent a mile legislation the popular demands for improved passenger service in the matter of stations, cars, conveniences, speed and safety were insistent and imperative.

Nowhere has the Interstate Commerce Commission shown any disposition to protect railway revenues from State passenger fare legislation that imposed heavier burdens on freight rates, and was calculated to force the railways to exhaustive and uneconomical economies.

Mail Service a Drain on Railways.

No part of the passenger service is so exacting in its demands, so palpably inadequate in its pay, as the carriage of the United States mails. It takes precedence of every other service. The government prescribes the most minute details of its operation. It specifies the equipment to be employed. Postal cars built according to government specifications have doubled in cost during the past fifteen years. The mails go by the fastest trains and the special mail trains which leave at the convenience of the postal authorities have the fastest schedules and are given the right of way. All other traffic, freight or passenger, is side-tracked to make way for Uncle Sam's flyers. Floods, tempests and snowslides may delay, they must not stop the mails.

Twenty years ago railway mail pay was insufficient to meet the cost of the service, which was cheerfully performed from mixed considerations of public duty and self protection. Twelve years ago a Congressional Commission, after exhaustive hearings covering two years, reported that "the prices now paid to the railroad companies for the transportation of the mails are not excessive." Between 1890 and 1911, the railway receipts from passengers increased 153 per cent., from freight 170 per cent., from express 249 per cent., and the government receipts from mail increased 291 per cent. In the meantime, although the amount of mail matter transported increased 296 per cent., railway mail pay increased only 117 per cent.

In 1910, the Postoffice Department paid the railways only $48,913,888 for the transmission of the mails, although the Department's own estimates placed the cost of the service to the railways at $34,125,167 for 194,567 miles of line, or pro rata, $37,878,934 for all mail carrying lines, exclusive of $18,000,000 for interest on property devoted to mail carriage; $10,746,157 for "working space"; $3,300,000 for erroneous basis of dividing expenses; $5,000,000 error from selecting November as typical month on which to base computations—making in all a total of $74,925,091, or $25,011,103 more than the sum received. This calculation takes no account of the unjust method of ignoring the growth of the service between the quadrennial weighings on which annual payments are based or any fares for departmental officials transported free.

Although the loss of over $25,000,000 has to be made up out of transportation revenues from other sources, presumably freight rates, there is no record of the Interstate Commerce Commission interposing any remonstrance against what Commissioner Meyer might well characterize as "a species of governmental piracy."

Decreased Revenues from Express.

In its recent inquiry into express rates the Commission has shown a disposition to view the subject of their reduction as something apart from other railway revenues.

Although the express business has come under the supervision of the Act to Regulate Commerce solely as correlative to the transportation of freight by the railways, and although more than half the gross receipts of the express companies (approximately 55 per cent.) is paid under contract into the railway treasuries, the Commission refused to permit the railway representatives to intervene or become parties to the hearings.

Last year the railway percentage of the express revenues amounted to $70,725,137. If, as has been suggested, the express rates ordered by the Commission should cause a reduction of 25 per cent in their receipts, the effect would be to decrease automatically railway revenue by approximately $17,000,000 without in any way providing for a corresponding curtailment in the extent or expense of the service. Here again the freight rate will have to pay the freight.

Net Revenues and Railway Safety.

While the public may view with equanimity the decreasing margin between railway revenues and operating expenses as chiefly the concern of bondholders and stockholders, it will not long tolerate any failure of the railways to meet the demands for improved facilities and safer service. If ever the public comes to realize that low rates mean stagnation in railway development by clogging the springs of fresh capital, and that eventually low rates beggar the railway that makes them and the community that takes them, and that economies in operation can be carried to a point where they cripple and endanger the service, then the public is likely to be heard from.

To-day we have approached perilously near the point where enforced economies sap the vitality of the railways. Before the clamor of selfish shippers and unprincipled demagogues, the railways have been driven to ruinously low rates and unsafe economies. How does the public suppose the railways hitherto have met this sliding scale of freight rates downwards? What does it suppose accounts for the increase of 50 per cent. in the weight of locomotives and 100 per cent. in train loads since 1898?

They represent the strain on railway management to meet increased wages, dearer materials, higher taxes and heavier interest charges, with bigger and more powerful units of operation. Road beds, rails and facilities have been improved to correspond. But the limit has been nearly if not quite reached.

No problem gives greater concern to conscientious railway managers than the apparent increase in casualties from operation due to two items—broken rails and defective wheels. They know—and if they did not a child could tell them—that these follow, as the night the day, the introduction of gigantic locomotives and enormous train loads. No rails milled by human skill can withstand indefinitely the multiplied impact of the railway equipment required to meet the burden of costly regulations and unremunerative rates. If the margin of safe operation has already been passed, regulation that requires the railways "to make bricks without straw," is responsible. Broken rails and defec-

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tive wheels are by no means the only alarming symptoms of the pernicious economies forced on American railways by low freight rates. Automatic immunity from accidents and indestructible cars are the vagaries of theoretical visionaries. With every increase of weight and speed the units of risk are increased in a greater ratio. If British and continental railways are comparatively freer from fatalities in train accidents than ours, it is because their high freight rates permit economical operation with equipment lighter than ours was twenty years ago.

Railways and the Cost of Living.

In the "American Magazine" for December, from behind the barriers of her physical infirmities Helen Keller, the mental triumph of our age, exclaims: "When I heard that locomotives had doubled in size and speed, I thought, 'The food of the wheat fields will come cheaper to the poor of the cities now,' and I was glad. But flour costs more to-day than when I read of those great new engines. Why do not improved methods of milling and transportation improve the dinner of the poor?"

Indeed, why? The answer is that the shipper and other middlemen engross every benefit that should inure to the advantage of all from milling and transportation improvements.

Does milk, the universal nourishment for all ages, cost more to the consumer to-day than twenty years ago? The railways have not added to that cost, for they are carrying milk for less to-day than then.

Do meat, eggs, butter and cereal products, that form the bountiful diet of the best fed people on earth, cost from 30 per cent. to 60 per cent. more to-day than twenty years ago? The railway rates on all of these are less than they were then.

Does the price of every article that enters into the cost of living, whether the product of the mine, the farm or the factory, average more than 30 per cent. more to-day than twenty years ago? The average receipts from all these commodities carried by the railways has added nothing to that price, for it is 18 per cent. less to-day than it was in 1892.

The larger engine of which Helen Keller has read has done more than its share to improve the dinner of the poor and to keep down the cost of living to all. But it has reached the limit of its capacity to absorb the margin of financial security and physical safety in railway operation under regulation that is deaf, dumb and blind to conditions that he who runs can read. It was a condition and not a theory that was presented to the Commission in the advance rate hearings in 1910. That condition was accentuated by the shrinking net income reported for 1911. It has been further emphasized by the bewildering report of the Engineers Arbitration Board last November. This not only grants advances, in some instances running as high as 30 per cent. and over, but establishes a minimum rate above the average daily pay for the territory involved three years ago and two and one-half times the actual average pay of British engine drivers. It accepts the misleading statement of Commissioner Lane above referred to that "the actual amount paid in dividends had increased to $405,000,000" in 1910. Its minimum ignores the dissimilarity in the traffic service and surroundings in the vast territory from the St. Croix to the Wabash, as well as between large and small roads. And finally it leaves the railroads unable to pay an increased compensation—to open again the question of an increase of rates with the Interstate Commerce Commission, which is an impractical suggestion for the poorer roads as their rates already average higher than those of the stronger roads.

Conclusion.

Much more could be added to this exposition of a situation that calls for the Interstate Commerce Commission to temper its regulation of the railways with a more generous utilization of its powers in the interest of the great industry upon which the entire fabric of our social and commercial progress depends. It is up to the Commission to promote "that harmonious union, that magnificent concord of all interests, of all classes, on which our national greatness and prosperity depends," or by adherence to the constrictive policies of the past, to bring stagnation and bankruptcy not only upon the railways but upon all the internal commerce and industries of the United States.

Hovering over the situation is the paralyzing alternative of Government ownership, with its bureaucratic extravagance and inefficiency, its "insolence in office" and its concealed deficits made good by general taxation.

The Outlook as Viewed by Prominent Officials.

Howard Elliott, president of the Northern Pacific has recently expressed himself as satisfied with the general business and trade conditions in the northwest and expects a continuance of favorable traffic gains on the lines over which he has control. While he does not look for a so-called "boom" in business, he sees no reason to anticipate a slacking in general trade.

F. B. Yoakum, chairman of the Board of the Executive Committee of the St. Louis and San Francisco Railroad Company, states that: "All basic factors that make the stability of the nation are in evidence in all sections, with the manufacturers all over the country excusing themselves for not being able to get the raw material fast enough to fill orders promptly. The material supply companies complaining of insufficient cars to handle promptly the coal, coke, lumber, pig iron, etc., does not look like a sufficiently distressing condition to make us feel that we are going backward instead of forward."

James J. Hill, in discussing conditions in the northwest has had the following to say:

"Never in my fifty-seven years of experience in the Northwest have I seen the outlook more promising for general all around business. This estimate applies especially to the crop outlook, but upon crops, of course, depend all the business fabric of the Northwest. Jobbers and retailers are doing all the business they can handle. Present conditions are quiet but there is a strong foundation of cheerfulness over the 1913 promise. Weather conditions for fall sowing have been very favorable."

In referring to the "Physical Value of Railroads" bill, Mr. Hill is quoted as saying that any fair valuation of the railroad properties in this country could not fail to show a valuation far in excess of their capitalization, which he affirmed is the lowest in the world.

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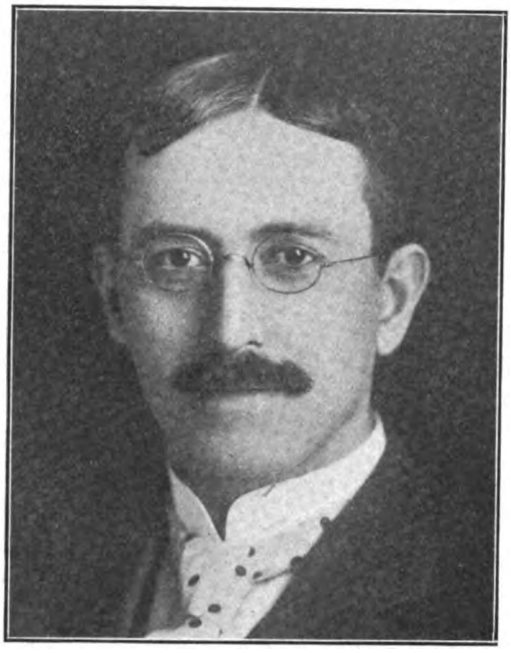
Department of Maintenance of Good Will

By FRANK W. NOXON,
SECRETARY, RAILWAY BUSINESS ASSOCIATION.



FRANK W. NOXON.

THE up-to-date railway manager in the United States must sometimes suspect that the public under whose manipulation, he has come, is as innocent of sympathy with him in his troubles as that barber met by Arnold Bennett, the English writer, during his recent American sojourn. Mr. Bennett inquired: "Why do you bump my head about so?" "Why not?" demanded the artist. A still more exciting adventure is related to have happened to a martyr who, in accordance with the institutions of his age and clime, had submitted himself to correction at the hands of the public hair abbreviator. He suddenly exclaimed, " Have you cut a piece off my ear?" Whereat the wielder of shears and power replied without agitation: "Yes, sir; but I don't think the hearing is affected."

It is no doubt a strain upon the transportation executive to avoid the conviction that his public chastisers, official or otherwise, view him as one whose substance can be hewn away with frolicsome gaiety and pleasing infliction of pain and yet without interruption to the functions. Some months ago a number of delegates to an international trade organization were discussing the obligation of shippers in the matter of helping to conserve railway credit. A Canadian member was appealed to as an impartial umpire and remarked: "I think the railroads can take care of themselves." This from a gentleman of whose country Chairman Prouty, of the Interstate Commerce Commission, recently said:

"There is hardly a railroad in the whole Dominion of Canada to-day, long or short, built by private capital, which has not received a subsidy, and usually a subsidy in money."

If the Canadian delegate had subtlety and meant to imply that the subsidies are themselves evidence of the ability of the Canadian railroads to "take care of themselves," his observation can hardly apply to conditions this side of the forty-second parallel; for nobody who knows Washington would spontaneously combust with thoughts of treasury grants to common carriers. Other aspects of the transportation problem would tend to exclude from Congressional consideration such a project even if any railway manager were to petition—which is unlikely.

The other delegates concurred with their Canadian colleague, and it is generally true that the hardest thing encountered by anyone solicitous for the welfare of the roads in the effort to establish a public belief in their need of more liberal treatment as to revenue is the public impression that railroads have at least as much money as they deserve, and can somehow find plenty more no matter what happens to them.

The Necessity for Studying Facts.

With this in view the railroad managers began a few years ago to study how the public might be induced to study facts rather than oratory and employ in studying the resources of the railroads, vast and all-powerful as they look, the same balance sheet method which they would use for a corner grocery. Valuable devices of presentation and machinery of conciliation have been developed. These range from the readiness of the executive to deliver simplified addresses full of facts and free from bitterness, to the appointment, as recently reported by an Eastern system, of an officer in charge of public relations. This last, it might perhaps be said to all railroad presidents, "is the machine you will eventually buy."

The railway president in a large number of cases now embodies in his own person the desire of the company that " the public be pleased." He is anxious, like Cassius, when taken to task by Brutus, to soften a situation where all his faults are "observed, set in a note book, learned and conned by rote, to cast into my teeth." He hopes to divest himself of the old aspect of stiff-necked royalty, or, if people on the line persist in thinking of him as ruler of a long and narrow empire, to resemble in their eyes the German Kaiser, who moves about among the people to learn their needs. Dr. Andrew D. White told me that when Ambassador at Berlin he talked with Wilhelm II, who had been criticised for traveling about so much. "Why," exclaimed the Emperor, "that is my job!" It has come to be regarded as the "job" of the railroad president to get acquainted with the population by constant contact with them, thus dispelling from their minds the mirage of an unapproachable superman and also learning what they are thinking about in connection with the property which he administers.

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Getting in Touch with the Public.

It was my privilege some time ago to read the manuscript of an address which an eminent transportation executive was to deliver. It had for several years been part of the work of the Railway Business Association to talk and correspond with hundreds of shippers in every part of the country. The most striking quality in that address was the accuracy with which the author of it had selected for his topics the phases which I have found uppermost in the minds of skeptical or unfriendly shippers and the directness with which he set forth just what they had told me they wanted and needed to know.

The natural inquiry is whether the visit of the president to a town on the line is not limited in its effectiveness somewhat like the religious revival. How about the let-down? This is a serious problem. It is not enough that the spirit of concession and co-operation shown by the president wins a certain degree of good will for the road, and that the local representatives reap an advantage from this and from the opportunity to imbibe the same attitude. All this may be partly or wholly undone, conditions may at last be worse than at first, if the local voice of the corporation lacks authority and instructions to transact business from day to day to the reasonable satisfaction of shippers, or if for one reason or another he does not develop himself more than previously as a citizen, a neighbor among neighbors.

Some of the roads have within a few years endeavored to guard against this tendency. Authority, for instance, of the local agents, or of certain grades of agents, has been increased in the matter of claims for damages by raising the limit of the amount to which a claim may be settled on the spot without reference to the claim department at headquarters. This change involves some danger of abuse, and the Interstate Commerce Commission has become very strict in requiring its examiners to apprehend payment of unjust claims; but it is the aim to select carefully the individual railroad agents to whom such authority is delegated, and the result seems to have been valuable in elevating the local representative in the respect and good will of his public. It may almost be said that good will or ill will for the road is largely determined just at this crucial point of contact between the shipper at the outlying station with the local railroad agent.

On the social and civic side there is an opportunity in every community for the railroad agent to increase his stature and accumulate friends for himself and for his company. He joins the Chamber of Commerce and interests himself actively in some branch of its work having perhaps no relation to his own. He belongs to clubs. He comes to move unmarked like other men among his neighbors, a good fellow whom they know in himself and for himself, a reincarnation of that railroad manager of the earlier days on the short road, who knew everybody on the line, held the esteem and affection of all, was credited with the best of intentions, and was generously forgiven if now and then he proved, like his fellows, that it is human to err.

The tendency to decentralize management on large systems has such purposes in view quite as much as efficiency in operation. The headquarters officer in charge of public relations would have on every division what Lincoln called Dana—"his eyes at the front"; and every outbreak of public resentment at any point would invoke straightway the concentrated facilities, talent and experience of the system for wise and broad treatment.

The Press and the Railroads.

A revolution has in recent years been wrought in the attitude of the railroad company toward the press, particularly in the manner of accidents. It is now practically universal practice to furnish prompt, frank and full information to the papers whenever there is a collision or derailment. With regard to the financial condition of the roads information is now made regularly available by the Bureau of Railway Economics, maintained by the railroads as a whole at Washington. This bureau is unique among agencies of the sort in that, so far as I know, it has never drawn a conclusion or pointed an argument in connection with the facts which it makes available to press and public. The point is to let the public draw its own conclusions from statistics reduced to sufficient brevity for consideration by busy men.

Fruitful Efforts.

It has been one of the delights of the Railway Business Association, now a little more than four years old, to observe in the course of efforts here and there in many States to promote conciliation between the public and the roads, that as the months wore on instances multiplied where the growing spirit and practice of closer touch with the people by the railroad managers had sweetened the air, converting suspicion and resentment into confidence and co-operation. Without the subsidence of controversial feeling brought about by the development of this railroad policy and method it would have been out of the question for the Association which I serve to obtain as we did obtain during 1912, the signatures of 4,000 shippers in nearly every State of the Union to a declaration expressing solicitude for the financial condition of the roads and a desire that the Government should permit such earnings as would foster railway borrowing power.

The railroads cannot "take care of themselves," because the Federal Government has assumed control of their charges and largely of their expenses, without taking over responsibility for their financial vigor, while the Interstate Commerce Commission is characterized by such incorruptible integrity that no railroad manager would think of seeking to exert an improper influence upon that body even if he felt tempted to find in that way an escape from his perplexities and anxieties. But the railroads are persuading the public to take care of them with much keener solicitude than in the past by getting acquainted with the people, finding out what they are thinking about, meeting so far as feasible their desires, and constantly letting them see that it is their own interest to favor efficient roads and to advocate public policies designed to strengthen railway resources and credit.

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The People and the Railroads

By C. D. KELLOGG,
SECRETARY, THE AMERICAN RAILROAD EMPLOYES' AND INVESTORS' ASSOCIATION.

C. D. KELLOGG.

IN writing on subjects affecting the railroads of our country, one is so impressed with the vastness of the interests involved, the evident hostile tendencies at work against them, the necessarily insurmountable obstacles in the way of adequate refutation of present public sentiment, and a feeling of impossibility to appreciate the conditions in which the railroads finally will be placed, even if the present flood of adverse legislation backed by this public sentiment grows no worse, that one is likely to be extreme in his use of condemnatory expressions.

It is not necessary, in this time and generation, to expatiate in glowing terms upon the stupendous influences railroads have had in the past upon our civilization and advancement, nor what they will exert in the same direction in the future, if their work is not unnecessarily hampered and their faith deadened. These attributes of christianizing and fulfilling the destiny of the American nation probably are understood fully, even if not fully appreciated, by the great majority of thinking people. This part being acknowledged, then it should be easy to try and be fair to each other in all business relations, of one sort or another, and then the railroads would and will have no complaint to offer. The great trouble is that there is so much loose thinking on these big railroad problems, and so many panaceas advanced by those who know little, or nothing of the intricate difficulties confronting railroad operations, that the public has come to believe that the railroads really could be run better by most anybody else than by those operating them.

It may as well be admitted at the start and in partial palliation of the present hostility, that in former times the railroads did things to the public not sanctioned by fair business ethics. But are the entire proceedings of all big business houses absolutely above reproach? In very truth, to what great business enterprise can you point in which fewer and less vicious or objectionable features entered than into the construction, progress and management of American railways? They make the assertion that in the railroads there has been much watered stock. Possibly that is so, but was he not a brave man, yea, a visionary one, who risked his money in a railroad that was builded into the wilderness, or out on the trackless plains, among sagebrush, buffalo and savages, where there would not seem to be any prospect of a return upon his investment in a generation or a lifetime? Where is the man, even now, who would do a thing like that? Moreover, if this watering, as they call it, had not been done, would it not have delayed for a generation or more the building up of the western country, and the upgrowth of the great and magnificent cities of the west, the civilization, homes and Christianity? Railroads of to-day should not be judged by those old standards and ways. In those old times they did largely as they could—not as they would. They were in every sense pioneers, and as pioneers they had to work.

It is to be observed that the public charges all these shortcomings to the railroads, and absolutely absolves itself from blame, or responsibility. But, in justice and fairness, is that so? Let us see. One of the greatest sources of evil charged to the railroads in the past was that of rebating. Political spellbinders and office holders dinned and dinned this into the ears of the public on all occasions, not giving their hearers time to think that it takes two to make a finished rebate bargain—nor has it ever yet been demonstrated successfully why a rebate giver is any worse, or more to be condemned than a rebate taker. Indeed, in times gone by, there were many instances when the rebate giver had little or nothing to say in the matter—the rebate was simply forced on him, or a condition perilously near bankruptcy stared him in the face. Then, too, in former times, a form of wholesaling in railroad rates was regarded as just as ethical and as much in line with fair business procedure, as a merchant, then and now, regards it—the man who buys a carload or a trainload of merchandise from a manufacturer expects to buy, and does buy at a lesser price than the man who buys a quarter carload—why, then, should not the railroads have a wholesale rate? The government has said "No," regardless of the lack of logic in the command.

The great difficulties the railroads have in reaching the public with their side of the story is responsible for much of the erroneous public sentiment against them, and probably also for much of the unfair legislation from which they suffer. For instance: a farmer in "Pleasant Valley" goes to town and buys a pair of shoes for five dollars, and when, eight or nine months afterwards, he wants to buy another pair, just

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like them, he is told the price is six dollars. After demanding a reason for this, he is told the railroads have raised their rates and, therefore, he has to pay more. Inquiry at the railroad office may show that the rate on shoes actually was reduced during that time, but the damage to the railroads is done; the farmer goes back, circulates the story among his friends and any attempt after that at refutation of it, or of setting him and his friends right is not only a useless, but, generally speaking, an impossible thing to do. Furthermore, it is shown very easily that the railroad rate on the ordinary and general articles of consumption by the public has no appreciable effect on the price the public pays for these commodities. The raising of the rate at once would be charged to the consumer by the dealer and the lessening of the rate probably would act in the same way, or, at least, it would not bring a reduction from the dealer.

The great hue and cry of spellbinders and would-be economists is that if proper economy were practiced by the railroads, they would still be in a position to make large percentages of revenue from the operation of their lines. This assertion sounds good to the public and reads well in the newspapers, but, when all is said and done, great economies in railroad operation which have taken place in the last few years have been borne by the part of the public least able to afford them; that is to say, the railroad employes. These chair-warming economists who prate learnedly of what economies the railroads might practice, if they had a mind to, do not take into consideration that the reduction of grades, straightening of curves, and the increase in the motive power of the railroads ultimately falls on the men who absolutely stand between the public and the managers of these great properties. In the last decade or two the motive power of the railroads has been increased to such an extent that where formerly three or five crews were necessary, to do the work, the same, or more work now is done by two or three crews. These conditions have been forced upon the roads as the only means by which they can withstand the assaults on their earnings made by government and other commissions. Installation of safety appliances and safety in operation of trains also have added greatly to the expense of the roads. Undoubtedly, there is no objection to making improvements of this kind, but, in fairness to the men who man the trains, credit should be given where due and it should be known that this condition has resulted in long hours of work and a greatly increased expenditure of vitality, energy and brains.

It should not be inferred from anything said so far in this article that men interested in railroads, or the well-wishers of railroads, object to government regulation, for probably no class of people are more thankful for the abolition of many of the practices into which they were forced than the managers themselves; but, as long as regulation has become an established theory of the government, let it be applied indiscriminately and without fear or favor to all interstate business. There is no more reason why the great problem of the high cost of living should not just as well be regulated by the government commission as are railroad rates. The fact that railroads are public service corporations does not modify the status of the question materially. It would be just as easy, and in fact, a great deal less complicated, for a commission to ascertain the expense in producing farm products, for instance, used by the whole populace and adding thereto the railroad rate from where those things are raised to where they are consumed, and a fair amount added for handling by the middleman—if middleman there must be—and then fixing the price which the consumer must pay. This would do away effectually with the present unfair practice of the producer getting barely enough out of his products to make him a living, and the railroads getting barely enough to pay for operating their trains, and the middleman getting 100 or 150 per cent. more than both of the other two from the consumer.

As a matter of fact, as long as the government has started in on a campaign of regulation, there is no logical reason on earth why regulation should not be applied to every business, or at least, every business dealing in interstate commerce. Or, if these laws of regulation are to be applied entirely to the railroads, then the logic of the whole thing undoubtedly would resolve itself into government ownership and control of these roads. In fact, the government controls them now in every way excepting the seemingly unimportant item of looking out for sufficient revenue to operate the properties successfully. It is not very difficult to imagine that the foremost thinkers among the managers of the roads at the present time are figuring on how the transition from private to government ownership is going to be accomplished. That it is going to be accomplished is a pretty well settled conviction. It has been suggested, and perhaps, with a good deal of logic, that taking into consideration the governmental function of eminent domain regarding public highways and other interests necessary for governmental operation, the government simply will take over and own the roadbeds and then charter operating companies to use these roadbeds, the government taking upon itself the responsibility of keeping them in good condition. The other thought about the matter is that if the government should take complete control of the roads and operate them, the owners will get a fair pay for the roads upon some basis of physical valuation. Indeed, this view of the matter seems to be suggested, if not borne out, by the fact that a bill is before Congress now providing for the physical valuation of all the roads in the United States. The thought back of all this is that if the government does acquire the roads and pays for them, at a valuation ascertained by experts, according to past experiences, it will not be very many years before that government operation will result in huge deficits which will so stagger the financial stability of the country, that the government will be glad enough to get rid of these roads and put them back into the hands of private owners, with guarantees of fair return for shrewd and economical management. If such a change or condition should be brought about, it is very easy to see where a vast sum of money might be made by a change from the present private ownership to government ownership, and from government ownership back again to private ownership. Moreover, regardless of all the evils possibly attendant upon any such purchase and sale as this, it is easy to see the great opportunity, or the great chance for many great and insidious evils to creep into the railroad problem.

Perhaps the one thing most detrimental to the

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country at large would be the undoubted actual negation of all railroad enterprise. There would be no incentive for anybody to project new lines into territory where needed, nor would there be anybody really to put a veto on a projection of lines into some territory where perhaps the dominating reason for it would be that of the desire of some political boss. Also, to our mind, the contemplation of government ownership in connection with the employes of railroads is not a pleasant one. The legitimate operating managements of roads might be put into the hands of competent men and it might not be. The probability is that it would go by political preferment, and not by experience in line with economical management. No doubt at all but what the brothers, nephews, cousins and other relations of some big political boss would have to be taken care of, without any particular regard for the good of the service, and this, in turn, would have a very bad effect upon the rank and file of the men who actually do the work.

Without voicing any feeling one way or the other regarding labor unions of railroad employes, it is easy to be seen that whatever has been accomplished by the employes in the past in building up these organizations, the tendencies of which are toward sobriety and good service, and the further fact of large accumulation of funds for insurance purposes, under government management these really great and valuable accomplishments virtually would cease. Also, all the beneficial results of collective bargaining, personal contact and "talking it over," would come to an end, because, as is natural to suppose, then the railroads would be operated according to strict military discipline.

The railroads have a great problem to work out and the destiny of this country is inextricably bound up in that problem. The only way to settle it is in fairness, rectitude and righteousness. The people continually want better service, faster trains, more elegant accommodations, more safety—all of which are perfectly legitimate demands, but the carrying out of those demands costs money and the people ought to be willing to pay for them. Everything the railroads use, just like everything everyone else uses, costs more than it used to, and it costs the railroads more, just as it costs everybody else more.

It is to be hoped that these facts will speedily be recognized by the people and that in response to that recognition the government soon will consent to a raise in rates so that the necessary progress of the railroads will not be hampered.

Retrospect and Prospect

By LOGAN G. McPHERSON.

THE document which by common consent marked the beginning of this Nation was proclaimed in 1776. On another Fourth of July, little over half a century later, one of those who had signed the Declaration of Independence turned the handful of earth that marked the initial construction of the first railway projected in the United States. To Charles Carroll, of Carrollton, was given the privilege of participating in the formal declaration of the birth of a new nation and of making the formal pronouncement at the laying of the cornerstone of the Baltimore & Ohio Railroad, one of a series of closely sequent events that betokened the birth of a new industrial age.

Could the venerable gentleman have lived another half century he would have seen the beginning of a new railway era, with problems different from those which gave perplexity to himself and his colleagues.

Early Railway Development.

In his day the economic benefit to be derived from the railways outweighed every other consideration. Railways were needed. They were projected often without consideration of profit from their operation; built at any cost in the certainty that the outlay would be repaid many times through the public gain from their use. Cities wanted railways that they might distribute their wares in the interior, and the interior wanted railways that it might sell its products in the cities. In no case did the expectations of a widening commerce fail. Construction gradually departed from primitive types. There was development in track, in cars, in locomotives, and in business methods. Although states and municipalities contributed to the capital of many of the new enterprises the few experiments with state control and operation were failures. Railways were fostered, not antagonized by the people. The only widespread conflict in which they were engaged was that between the railways and the canals; and even this was not between all of the railways and all of the canals, but between railway and canal in immediate competition.

Effect of Civil War.

At about the time when it had clearly been demonstrated that the railways were more efficient and less expensive agencies of transportation than the canals came the Civil War. The need for an uninterrupted transportation of troops was a factor which led to the institution of through car service, a development that was accentuated by the demand for carriage of the mails without unnecessary transfer. Within a decade after the close of the war the main lines of the existing network had been laid or their course was clearly indicated. There were lines of rail between all of the principal industrial and commercial centres; from ocean to ocean, from the lakes to the gulf.

Thus closed the first half century of railway development in the United States. The railways had been encouraged on every hand. There were men still in the active life who had done business in the days when the mule with panniers, the wagon, the stagecoach, and the canal were the instrumentalities of transportation, and the traditions of these days were fresh in the popular mind. It was recognized on every hand that the building of the railways had made possible the extension of the population, political unification and the growth of industry and commerce. The men of rugged energy, foresight, patience and persistence who had built the railroads and organized railroad transportation towered high in popular esteem.

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Broadening Railway Influence.

The first half century of the railway era began with the crude construction of short local lines designed to serve particular communities and particular regions. It closed with the extension, the connection, and frequently the corporate amalgamation of short local lines into through routes over which an increasing volume of traffic flowed to a wider population, rendering a broader economic service than to the residents of a particular city or to the producers of a restricted area.

It was no longer the main consideration that the railways carried passengers more expeditiously, freight more quickly, in larger quantity, and at less expense than did the stagecoaches, wagons and canals. It was no longer the point that a city could distribute its wares in a wider area and draw produce from a wider area than had been possible with these antiquated methods of transportation. It became the question whether the manufacturers and merchants of a city could distribute their wares in this area or that area in competition with the manufacturers and merchants of another city, whether the producers of a given area could send their products to this market or to that market in competition with the producers of another area. Variations in the rates of freight, so slight as to have no influence in determining prices paid by the ultimate consumer, became the dominant factor in limiting or extending the area in which a manufacturer or a wholesale merchant could dispose of his wares, or in determining over which route and in which market products of the field, the mines, and the forest should be sold.

Stock Watering versus Freight Rates.

This is the crux of the contest from which there is some evidence that we are emerging. At the beginning of this second half century, that is during the dozen years or so after the close of the Civil War, the manipulations of those who juggled with the finances of the railways became conspicuous, but these manipulations have had negligible effect upon the rates of the railways; the railways of the United States have always carried freight at rates that averaged on the whole far lower than those of any other country. Such juggling of railway finance as there has been has wrought injury to investors, but its effect upon the vast structure of economic benefit reared by the railways has been no more than flecks in the shifting shadow.

Yet it is the shippers that have raised the clamor, and to be sure not always without justification. There were rebates, the cutting of rates; stealthy devices of one kind and another were resorted to by both railways and shippers. Competition is warfare; business of that day was warfare. Rival railways were at war; rival shippers were at war; and railways and shippers were each trying to get the best of one another. All of this time business was being done, manufactures were diversifying; the output of mines, mills and factories was increasing; agriculture was extending. Yet in the denunciation of the railways it would almost seem that the underlying economic benefit which they yielded in greater and greater measure had been forgotten.

Economic Benefits of Unification.

The problems that arose in this period had barely been foreshadowed in the previous decades. Attempts at their solution by the railway companies themselves through pools, traffic agreements, partial coalition and complete amalgamation were set aside by public opinion in favor of governmental regulation, with the present status of which every one is familiar.

There is an old maxim that where combination is possible, competition is impossible. Instead of accepting this economic truth and facilitating and controling development along the lines indicated by it, the great body of the people of this country have set their teeth in its face. While federal regulation of the railways is tending more and more to regard them from the standpoint of their social service as a whole, the tendency of existing law is to prohibit such corporate unification as might tend to enlarge corporate administration in correspondence with an enlarged conception of social service.

The statement that the facilities of the railways as a whole should be so adjusted and utilized that they may render the best service to the Nation as a whole, will probably not be contested. The statement that the New York Central Railroad is a more serviceable agency than the separate, short railroads between New York and Albany of which it is constituted will probably not be contested. That the Chicago & Northwestern Railroad and the Chicago, Milwaukee & St. Paul Railway give better service to the regions traversed by them than could the score or more of smaller lines of which each is composed is likewise beyond contest. Yet public opinion now decrees that the same principle of combination, through which may be attained more efficient and economical administration and the better adjustment of facilities to service, shall not be carried the further step in application to the Great Northern and Northern Pacific Railways, to the New York, New Haven & Hartford and Boston & Maine Railroads, to the Union and Southern Pacific Systems.

Governmental Regulation.

If governmental regulation suffices to abolish the evils of underhand rate cutting, the giving of rebates and other unjust discriminations, will it not suffice to prevent or to abolish the evils to be feared from monopoly? The endeavor to obtain relief from the evils of unrestrained competition brought about governmental regulation. Why cannot governmental regulation be made effective as a restraint upon combination, promoting its beneficial, while prohibiting its injurious, effects?

Through the processes of an inevitable evolution the facilities of the railways, even under separate corporate ownership and administration, have tended more and more to become adjusted to the best service to the entire Nation. The formation of through routes brought about the standard gauge, which has enabled the freight cars of each railway to run over the lines of every other railway, and has led to the organization of the committee of the American Railway Association which compiles and disseminates information as to the surplusses and shortages of freight cars in each section of the country. There is a growing tendency to avoid wasteful and duplicate construction by the joint use by

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different companies of the same tracks. The amalgamation of railways leads to the common use of switching tracks and other terminal facilities. To an extent it has led to a development that must become more pronounced as the traffic of this country increases, and this is the differentiation of the traffic channels. On the lines best adapted to the through movement of ore and coal should run solid trains of ore and coal; on the lines best adapted to the through movement of cotton should run solid trains of cotton, and so also with the other great staples of traffic. That competition which results in each railway endeavoring to obtain all of the traffic it can of every commodity, regardless of its adaptability for the most efficient transportation of that commodity, leads to economic waste just as did the oldtime practice of roundabout lines cutting rates to obtain traffic that were more efficiently moved by their shorter and more direct competitors.

The Problems of the Future.

As the problems of the second half century of our railway era were foreshadowed in the first, so also it may be that the problems of the third half century are foreshadowed in these later years of the second. It may not be impossible that in the next decade or so the problems that have arisen during the past generation will have been disposed of; that first and foremost, there will be brought about a radical diminution in the number of accidents; that contentions as to railway rates instigated by rival shippers and rival markets will have been brought into a certain equilibrium; that the wages of railway employes will be brought into equitable adjustment, and measures for the adequate training and discipline of railway employes made effective; that the right of the railways to a reasonable return for their service will be recognized and that the basis for that return will be established.

Interwoven with these problems is the great problem of adapting and maintaining the facilities of the railways to the best service of the whole people. As the combination of the short local routes into through routes and the extension of through routes over the entire country was the crown of the railway achievement of its first half century, may it be that the people will come to look upon the complete correlation and integration of the railway lines in each section of the country, to the end that they will best serve the needs of the traffic of that section and therefore of the whole country, as the crowning achievement of a later period?

If in each section of the country the securities of the railways were held in largest measure by the people of that section, if their chosen officials were men of proved integrity and ability, if the fullest knowledge were always available as to their affairs, if between the people and the railway managers there were mutual knowledge and frank discussion of the needs of the railways and the needs of traffic, and with a governmental body of the proper personnel to serve in the last resort as an arbiter of contentions, would not the railway problem in all of its phases be well on the way to solution? Is there any reason that this condition be not attained? Is there not evidence that we are advancing to that attainment and that the more serious consideration now being given on every hand to the various phases of the problem will lead to the broader popular understanding that will further that advance?

Immediate Requirements.

In the meantime the immediate and pressing needs of the railways must not be forgotten. While their performance becomes more and more intensive, ton-miles and passenger-miles increasing per locomotive, per train and per mile of line, their larger receipts are absorbed in increasing degree by expenses. While the crops of the country show little if any increase per acre, the prices of farm products have mounted fifty per cent., seventy-five per cent. and higher; and the net return of manufactures is over twice as great as that of the railways. It is, therefore, not great cause for wonder that from 1900 to 1910 the net capitalization of the railways increased but little more than half as rapidly as the capital value of agriculture or the capital value of manufacturing. This alone is sufficient to justify the apprehension of railway managers that they will not be enabled to develop the railway plant in pace with the development of traffic, an apprehension that even the extraordinary aggregate of the railway receipts of the immediate present does not allay.

Opinions on Anthracite Trust Decision.

Attorney-General Wickersham had this to say regarding the anthracite decision:

"The annulment of the 65 per cent contracts was a very important victory for the government. It opens the way for competition in the coal trade.

"It is also important because the court declares that although a contract may be innocent in itself, a bundle of them may constitute a violation of the law."

President George F. Baer says in reference to the anthracite decision:

"The decision as far as I am able to judge from the reports received sustains the company with the exception of the 65 35 per cent. contracts and the holding of the Temple Iron Co. stock. I have always been indifferent as to the 65 35 per cent. contracts. They were made with the operators to induce them to join in the settlement of the strike of 1902. They were never satisfactory to me because in times of dull trade we have had to take their coal and store it, and in times of active trade they have, as a rule, done just as they pleased as to delivering the coal to us under the contract.

"As to the Temple Iron Co. decision this is a matter of indifference. The Reading system never had any of the coal traffic from these mines. The property is a valuable one and we will sell our stock at a large profit to anybody who wants it."

J. A. Monroe, vice-president of the Union Pacific, is quoted as stating that basic conditions throughout the West are extremely good and that a large business for the railroads in 1913 is anticipated. He asserts that the sections west of the Mississippi River have never been more prosperous than at present and that little attention has been given to the question of "Tariff Provision."

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Biographic Sketches

SAMUEL REA,

WHO, ON JANARY 1, SUCCEEDED JAMES MCCREA AS PRESIDENT OF THE PENNSYLVANIA RAILROAD.

SAMUEL REA, who became President of the Pennsylvania Railroad on January first, succeeding James McCrea, retired, was born in Hollidaysburg, Pa., September 21, 1855. Mr. Rea's first connection with the Pennsylvania Railroad Company was in the Engineering Department in 1871 as a chainman and rodman. From 1873 to 1874 he was in the office of the Hollidaysburg Iron and Nail Company, but in 1875 reentered the service of the Pennsylvania, and during the next two years was Assistant Engineer in the construction of the chain suspension bridge over the Monongahela River at Pittsburgh, and upon its completion was appointed Assistant Engineer of the Pittsburgh and Lake Erie Railroad Company, then in the course of construction, with which he remained until the completion of that road. In 1879 he returned to the Pennsylvania Railroad System in the capacity of Assistant Engineer. From that year until 1883, Mr. Rea was the engineer in charge of surveys in Westmoreland county and of the rebuilding of the Western Pennsylvania Railroad to make it a low grade freight line. In 1883 he was transferred to Philadelphia as Assistant to Vice-President DuBarry with title of Principal Assistant Engineer, which he held until 1888, when he was made Assistant to the Second Vice-President. This office he resigned in 1889 to go to Baltimore as Vice-President of the Maryland Central Railroad Company and Chief Engineer of the Baltimore Belt Railroad Company. He again entered the services of the Pennsylvania Railroad in 1892 and was made Assistant to the President of that company.

On the day of his appointment he left for London, where, by direction of President Roberts of the Pennsylvania Railroad Company, he made an examination of the railways terminating in the English metropolis, and of the underground railways—then constructed and proposed, and subsequently, he had a special report thereon. The result of this experience was afterward put to good service on the Pennsylvania Railroad's New York Tunnel Extension.

After the death of Vice-President DuBarry in 1892, Mr. Rea was assigned to general construction work then in progress, the acquisition of right of way and real estate in that connection, the promotion of all new lines or branches, and the financial and corporate work incident thereto.

On February 10th, 1897, Mr. Rea was appointed First Assistant to the President of the Pennsylvania Railroad Company, and on June 14th, 1899, following the election of Mr. A. J. Cassatt as President to succeed Mr. Frank Thomson, Mr. Rea was elected Fourth Vice-President of the company. On October 10th, 1905, he was advanced to Third Vice-President, and on March 24th, 1909, to Second Vice-President. In addition to his former duties he was placed in charge of the engineering and accounting departments. On March 3d, 1911, Mr. Rea was elected First Vice-President.

On May 8th, 1912, when the practice of designating the vice-presidents numerically was discontinued, Mr. Rea was elected vice-president.

He is also Vice-President of the Northern Central Railway, Philadelphia, Baltimore and Washington Railroad, and West Jersey and Seashore Railroad companies, and a director of The Pennsylvania Railroad Company, and many other railroad and financial corporations.

Incident to supervising the corporate work of the subsidiary companies of The Pennsylvania Railroad Company East of Pittsburgh, and of the promotion and construction of new lines, Mr. Rea acts as president or vice-president of nearly all these companies.

For many years he was interested in the project to bridge the Hudson River from Hoboken to New York City, and thus establish in the metropolis a terminus for the railroads using ferries from the Jersey side. He was one of the incorporators of the North River Bridge Company, chartered by an Act of Congress to build that bridge.

When other railroad companies failed to join The Pennsylvania Railroad Company in the project to bridge the Hudson, and after a very careful examination and report on the entire project

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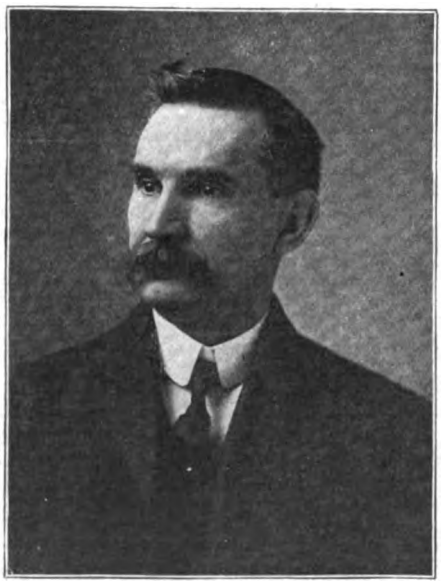
by engineering experts, The Pennsylvania Railroad Company determined to build its own tunnels under the Hudson and East Rivers, with a large station in the heart of New York City. After this plan had been fully approved by President Cassatt and the Board of Directors of The Pennsylvania Railroad Company, Mr. Rea was given direct charge of what is at present known as the most important piece of engineering work in this country and has carried it out to a successful conclusion. In recognition of the scope of this great work and of its public utility, the University of Pennsylvania, on February 22d, 1910, conferred on him the degree of Doctor of Science. As a part of this project may be considered the construction of the New York Connecting Railroad jointly by The Pennsylvania Railroad Company and the New York, New Haven and Hartford Railroad Company, which, with the tunnel extension of the Pennsylvania Railroad, will form a through route for railroad transportation between the Southern, Western and New England States.

Mr. Rea is a member of the American Society of Civil Engineers and of the Institution of Civil Engineers of London. He is the author of "The Railways Terminating in London," a comprehensive study based on laborious personal investigation of the physical and financial condition of the English Railway Systems.



JOHN F. AUCH,

RECENTLY ELECTED VICE-PRESIDENT OF THE PHILADELPHIA AND READING RAILWAY.

THE recent announcement of the election of Mr. John F. Auch as one of the vice-presidents of the Philadelphia and Reading Railway Company, a newly-created position, is a high tribute to his wide and practical knowledge of modern railroad and transportation problems, as well as a tangible recognition of the energy and ability which he has displayed throughout his active and successful career, and it certainly would have been a difficult matter to have made a stronger or more acceptable choice for the official position in question. It is likewise a deserved tribute to Mr. Auch's high personal character and enterprising trend of mind, and the announcement of his election has not caused any great surprise to his numerous friends and acquaintances, for those who are intimate with his innate ability and progressive personal qualities have always felt confident that he would win a high position in his chosen profession.

Mr. Auch's wide and varied training and experience, supplemented by the foundation traits of thrift, firmness and industry, eminently fit and qualify him for the important duties and responsibilities which will devolve upon him as vice-president. Mr. Auch will also continue in his present capacity as freight traffic manager, and the news of his election as vice-president has been favorably received and commented upon in business and railroad circles. On account of his long experience and eminent qualifications he will undoubtedly acquit himself of his new prescribed duties in an extremely satisfactory manner.

Mr. Auch is a member of the American Association of Freight Traffic Officers, which was organized in 1906. At the time of its organization he was made a member of the Executive Committee, and in 1907 was made its Secretary-Treasurer, which office he filled until elected President in November, 1910.

Mr. Auch entered the service of the Philadelphia and Reading Railroad in October, 1875, in the capacity of night operator at West Spring Mills. He alternated between night and day service in the same capacity at various points until the fall of 1879, when he was appointed station agent at Chalfont, Bucks County, Pa. He remained in this department of the service with two or three transfers until the summer of 1885, when he accepted the position of chief clerk in the office of the Division Freight Agent of the Philadelphia and Atlantic City Railroad, at Philadelphia, and being appointed Division Freight Agent to succeed Samuel Garwood in the fall of 1886.

In 1888, the separate office of Division Freight Agent for the Philadelphia and Atlantic City Railroad was abolished, and Mr. Auch was then appointed Traveling Freight Agent and assigned to duty in the Atlantic City Railroad and New York division territory. In 1889 he relinquished the title and duties of Traveling Freight Agent to accept the position of Chief Clerk to the General Freight Agent, which position he filled with marked ability until April, 1891, when he was appointed to the position of Division Freight Agent, with headquarters at Harrisburg, Pa. In the latter position he remained until April 16, 1894, when he was appointed Assistant General Freight Agent, doing service under this title fourteen years, or until May 1, 1908, when he was made General Freight Agent. On November 1, 1909, he was appointed Assistant Freight Traffic Manager, and December 27, 1909, Freight Traffic Manager, which position he has successfully filled until his election to the office of vice-president.

Ralph Budd has been appointed assistant to the president of the Great Northern, with offices in St. Paul.

Robert I. Farrington has tendered his resignation as vice-president of the Great Northern to take effect December 31st.

Alfred E. Rosevear has been appointed assistant to the vice-president of the Grand Trunk, with headquarters at Montreal, Que.

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Financial

THE "MONEY TRUST" INVESTIGATION.

THE country has been startled by sensational testimony before the House Committee investigating the so-called "Money Trust." This investigation has been very carefully planned by Mr. Samuel Untermyer, the counsel for the committee, who has developed in an orderly way a large mass of testimony tending to show the centralization of financial control of many large corporations in the hands of a small group of New York financiers. Mr. Untermyer claims to have proven that eighteen banks and trust companies control, through interlocking directorates of 134 concerns, $25,325,000,000 of the capital of the country invested in industrial, transportation and general financial enterprises. These interlocking directorates consist of 180 men who hold in the aggregate 385 directorships in 41 banks and trust companies, having total resources of $3,832,000,000 and total deposits of $2,834,000,000; fifty directorships in eleven insurance companies having total assets of $2,646,000,000; 155 directorships in 31 railroad systems having total capitalization of $12,193,000,000 and a total mileage of 163,200; six directorships in two express companies and four directorships in one steamship company, with a combined capital of $245,000,000 and gross income of $97,000,000; 98 directorships in 28 producing and trading corporations having a total capitalization of $3,583,000,000 and total gross annual earnings in excess of $1,145,000,000, and forty-eight directorships in 19 public utility corporations having total capitalization of $2,826,000,000 and total gross annual earnings in excess of $428,000,000; in all, 746 directorships in 134 corporations.

The institutions which are alleged to control the Money Trust are J. P. Morgan and Company, First National Bank, National City Bank, Guaranty Trust Company, Bankers Trust Company, Kuhn, Loeb and Company, National Bank of Commerce, Hanover National Bank, Chase National Bank, Astor Trust Company, New York Trust Company, Blair and Company, Speyer and Company, all of New York; Continental and Commercial National Bank, First National Bank, and the Illinois Trust and Savings Bank, of Chicago; Kidder, Peabody and Company, and Lee Higginson and Company of Boston and New York. There is nothing new about these facts which have been repeatedly brought forward, notably by Senator LaFollette in 1908 in a speech in the United States Senate.

These conditions result from the natural concentration of loan funds in the large cities where, because of the superior inducements which can be offered, these funds naturally would flow into the larger institutions of those cities. The advantages of a large financial institution, especially when it is a question of making loans of large amounts, are so great that a number of consolidations of banks and trust companies have been formed in recent years. The growth of the Bankers Trust Company, the Guaranty Trust Company and the formation of the Continental and Commercial National Bank of Chicago being familiar illustrations of this consolidation movement. It is to New York, Chicago and Boston and Philadelphia, therefore, that corporations desiring new capital naturally go. The great bankers of these cities furnish the capital every year for a multitude of new undertakings or extension of existing enterprises. Being in a sense, responsible for the securities which they sell and seeking further advantageous connections they ask and obtain positions on the directorates of the companies which they finance. These connections being mutually profitable are continued and strengthened and the result is the centralization of control which exists from New York all over the country, and includes not only the large corporations which are enumerated in the report above referred to, but a great multitude of smaller institutions of every description affiliated with or dependent upon these large corporations. These facts are established and through them the counsel for the committee is seeking to draw the inference that the United States is held fast in the grip of a Money monopoly with J. P. Morgan at its head, a monopoly which is every year getting a firmer hold upon American industries and which if unchecked will in time become the absolute master of the American people.

These facts are indisputable but an entirely different inference can be drawn from them. The concentration of loan funds in the large cities, especially in New York, is clearly proven. Money comes to New York as wheat comes to Chicago, sugar to New Orleans, hogs to Omaha and Kansas City, turpentine to Savannah, wool to Boston, because New York is the best market for money just as these other cities are the best markets for the commodities which find there their principal market. It is in New York that money can be sold at the highest price. Only in New York can lenders always be certain of finding borrowers ready to take their money. The national banking law recognizes the desirability of the concentration of loanable capital by allowing banks outside of the reserve cities to deposit three-fifths of their lawful reserves or fifteen per cent of their deposits with a reserve agent, and further authorizes national banks in such cities as Philadelphia, Boston and Pittsburgh to deposit one-half of their lawful reserve with the reserve agents in New York, Chicago, and St. Louis. In the same way State banking laws quite generally allow State institutions to count as a part of their legal reserve deposits with other banks. The banking business of the country is built up on this foundation of centralized reserves which has concentrated the loanable capital of the country mainly in New York, and in New York has brought it under the control of the interests dominated by J. P. Morgan and Company. This situation has arisen because it has proven profitable to those who cooperate in its development. Because banks and corporations have found it advantageous to deal with New York institutions, to employ large private bankers to sell their securities, to admit these bankers to their directorates in order to be sure of effective co-operation when in need of capital, to carry their accounts with institutions large enough to lend $25,000,000 if need be to one borrower, and above all, to trust their interests to men in whose integrity they have absolute confidence. It is in its personal aspect that the money combination has the greatest interest. It is doubtful if this centralization of financial control could

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have been accomplished under the leadership of any other man than Mr. Morgan. Mr. Rockefeller, measured by mere money, is a far stronger man personally than Mr. Morgan; his fortune is probably several times greater than that which Mr. Morgan has accumulated. Mr. Carnegie was at one time a much richer man than Mr. Morgan. Indeed, there are a number of men in the United States whose personal fortune is much greater than the wealth of the head of J. P. Morgan and Company. It is not money which gives Mr. Morgan his supreme power in American finance; it is the confidence which other men have in his integrity, in his ability to think for others, to subordinate his own personal interests to the interests of the group and in times of national peril to dominate by the force of his personality, backed by the implicit trust which men have in him, situations which are fraught with possibilities of national disaster. Such a man who has been in Wall Street for fifty years, who has seen several generations of would-be rivals rise and pass away, whose position to-day is stronger than ever before, and his associates, other men trust because by long experience they have found them worthy of trust. If when Mr. Morgan dies, and he is 76 years of age, a successor is found who can inspire equal confidence, who can hold together the group of immensely wealthy and powerful men who have gathered about Mr. Morgan, this so-called Money Trust will be continued. If such leadership is not available this huge combination of capital, bound together by nothing more tangible than mutual trust, will be dissolved. In other words, so long as the men who administer this enormous power recognize that they are public trustees, that they hold in their hands the welfare of the United States, just so long will they prove themselves worthy of confidence and control will come to them. If, however, upon Mr. Morgan's death, his vast power, if indeed it can be bequeathed, is passed on to others who will not administer it as trustees but for their own private advantage, then the Money Trust will immediately be broken into fragments.

THE STOCK MARKET.

THE stock market was weak throughout December, and on several occasions the severe pressure upon quotations resulted in serious declines. The extent of the decline in the active stocks may be seen from the following table which shows the high prices of four issues on November 29th, and on December 27th:

	Nov. 29th.	Dec. 27th.
Reading	171	167⅝
Union Pacific	173⅜	160½
Amalgamated Copper	85	76¾
United States Steel	75¼	68¼

Declines were general throughout the list and the market was very unsatisfactory. Serious trouble did not begin until the week ending December 14th. By this time the Supreme Court decision in the Union Pacific case had made itself felt. Apprehensions as to the consequences of this decision were mainly responsible for drastic liquidation which continued throughout the week, and which resulted in a decline of nearly 23 points in Union Pacific stock, and from 8 to 10 points in other issues. On Wednesday, December 11th, the total sales on the New York Stock Exchange reached 1,201,220 shares, the largest number since October, 1911. On this day the stock list showed an average decline of five points for the week. The last two weeks of the month have seen a considerable improvement in quotations and a large part of the losses have been regained. Prices are, however, generally lower than at the beginning.

THE FINANCIAL PROBLEM OF THE HARRIMAN LINES.

THE topic of principal immediate interest is the plan which can be adopted for the distribution of Union Pacific's holdings of Southern Pacific stock. The various considerations which must be kept in mind in formulating such a plan, are set forth in a brief filed on December 19th with the Supreme Court by the Union Pacific and the Oregon Short Line. The court is asked to sanction a plan for the sale of the Southern Pacific stock to the shareholders of the Union Pacific, substantially in proportion to their respective holdings, or by dividend to the stockholders, if such dividend be legally payable. The Southern Pacific shares which must be disposed of under the opinion of the court, amount to $126,650,000 par value. The capital stock of the Union Pacific is owned by over 22,000 shareholders, having an average holding of approximately 140 shares. The Union Pacific seriously objects to any plan for the public or general sale of its Southern Pacific stock. The brief points out that Southern Pacific stock, since the announcement of the recent decision, has ranged in price on the New York Stock Exchange from 111¼ to 105½ and that this stock has at all times, during the last four years, sold above par and at one time up to $139 a share. It would be impossible to sell this large amount of stock to the general investing public without a serious sacrifice of its value. The stockholders of the Union Pacific are the natural purchasers for the Southern Pacific stock. It is recognized that the proposition presented is different from that in the Northern Securities dissolution where a company was organized to hold certain stocks, and where a decision that such holding was illegal practically worked a dissolution of the company and a distribution of its assets to its stockholders. In the present case the Union Pacific incurred obligations to purchase this Southern Pacific stock and the distribution of this stock to its shareholders would represent a large special dividend.

The Attorney General takes exception to the plan offered on behalf of the Union Pacific and suggests that the requirements of the Supreme Court's decree can best be carried out by offering the stock to the shareholders of both the Southern Pacific and the Union Pacific. The shareholders of the Union Pacific, he points out, can fully protect themselves as to the price at which the stock is to be offered, but if the offer is exclusively made to the Union Pacific stockholders and if the offer is accepted, it will result in retaining control of the Southern Pacific in the hands of a comparatively small number of Union Pacific stockholders who now own a majority of Union Pacific stock. The Government admits that a public sale of such a large amount of stock is impracticable. The Attorney General has apparently departed widely from the opinion which he held at the time the plan of dissolution of the American Tobacco Company was attacked by certain independent tobacco manufacturers and growers. That plan, it will be remembered, provided for a pro rata distribution of securities among the

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stockholders of the American Tobacco Company. It was objected that this plan left the control of the various companies into which the trust was separated in the hands of the same group which previously dominated the large corporation. The Attorney General defended the plan on the ground that the individual defendants who, it was conceded would own a controlling interest, in the common stock of the new American Tobacco Company, and such proportion of the securities of the subsidiary companies as their common stock holdings gave them, would obey the mandate of the court forbidding them to conspire or combine to continue the unlawful conspiracy in which they had been engaged, and in fact, events have proven that the Attorney General was right.

In commenting upon the plan of a pro rata distribution of Southern Pacific stock to Union Pacific stockholders, however, the Attorney General makes the following comment: "An adjudication that where stock of one or more corporations is acquired and held by another, under such circumstances as to constitute an unlawful combination in violation of the Sherman law, and it is so decreed, that the stockholders of the holding company have a vested right to a pro rata distribution of the stock so unlawfully held, would go far to emasculate the Sherman law, and it is submitted no such proposition can be sustained either on principle or authority."

Of secondary interest to the disposition of Southern Pacific stock, is the future of the two properties under independent management. Before the Union Pacific acquired control of the Southern in 1901, the Southern did compete actively for transcontinental business. During the last few years, however, the Southern Pacific's traffic of this kind has seriously declined. The opening of the Tehuantepec route with its forty-cent rate as compared with the two-dollar-rate on freight shipped over the Southern Pacific via New Orleans, has injured the Southern, and with the opening of the Panama Canal the Southern Pacific's share in transcontinental business will be still further reduced. Little effect is, therefore, likely to be produced upon the earnings of the two companies from transcontinental traffic by their separation.

A more important consideration is the future relations between the Central Pacific and the Union Pacific. The Court's decree stated expressly that an arrangement whereby the Union Pacific should retain control of the Central Pacific would not be repugnant to the law. It is not considered likely, however, that the Southern Pacific would dispose of such a valuable part of its system. Three alternatives are therefore open to the Union Pacific to secure a Western outlet. The first is a traffic agreement with the Central Pacific; the second, a traffic agreement with the Western Pacific, and third, the construction of a Union Pacific line to the coast. Of these the first is most likely. The Union Pacific does not depend upon the Central Pacific for an outlet to San Francisco any more than the Central Pacific depends upon the Union Pacific for an outlet for its own eastbound traffic to the Pacific Coast. The two roads have been operated together since the beginning and it is unlikely that their directors will fail to work out a plan whereby these profitable relations may be continued. Certainly in such a bargain the advantage lies largely with the Union Pacific since the Central Pacific, without its eastbound connections, is little more than an inland spur ending in Utah.

To add to the difficulties confronting the Union Pacific, the publication of the pamphlet report of the company for the year ending June 30, 1912, shows that net earnings were reduced by $4,491,713, or 12½ per cent. A number of causes contributed to this decline. There was a decrease in revenue from a shortage of crops, with the resultant shrinkage in general traffic, and there were reductions in rates made by commissions, both state and interstate; there was an increase of 1.17 per cent in operating expenses, a very large increase in taxes—26.11 per cent, and an increase in interest charges resulting from the payment of a full year's interest and rentals on newly built lines taken over last year, but on which the earnings have not as yet been fully developed. In five years payments for taxes have more than doubled, rising from $2,069,734 in 1907, to $4,368,788 in 1912. The total surplus of the company over fixed and other charges was $34,039,993, and after the payment of the regular 10 per cent dividend, a balance remained for surplus of $8,393,510.

THE BOND MARKET.

THE bond market during December continued the downward drift which has been a characteristic of the entire year. Beginning with February, when bond prices were at the year's highest level, the movement has been with few interruptions, steadily downward. The average list of bonds on the New York Stock Exchange list is down more than two points from the high level of the year, and between two and three-quarters and three points from the highest figures of 1911. The extreme declines have of course, been in the more speculative issues, such as Rock Island collateral fours and St. Louis and San Francisco refunding 4's, which have fallen 9⅛ and 7 points respectively. Erie general 4's have fallen 5¼, and Colorado and Southern general 4's 4⅜. The very best bonds in the list, however, have participated in the decline. Reading general 4's, for example, have declined 2¾, and Atchison general 4's 3¾. The investor can to-day buy the highest grade bonds to yield over 4.25 per cent, bonds which eight years ago could not be bought on better than a 3½ per cent basis. The indications are that the very best class of corporation borrowers will have to concede higher rates of interest to market their securities. Over $250,000,000 of short term notes will mature during 1913 and these notes, for the most part, bear high rates of interest. So far as they must be refunded into long term bonds an approximation must be made to the rates of interest which they now pay.

THE OUTLOOK.

THE indications are that the railroads must turn from financing with bonds to a larger use of stock to obtain funds for the necessary expansion of their facilities. The opportunity of issuing first mortgage bonds is practically gone, the amounts of these bonds authorized by leading railroads has been about exhausted. What remains is the class of refunding bond and the convertible debentures. A debenture bond by itself is not popular with the investor. Its marketability arises out of the speculative possibilities of converting it into stock of the issuing company. It is well recognized that the sale of convertible bonds is a deferred sale of stock at the conversion price. It would seem to be preferable to the use

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of this indirect method to appeal directly to the stockholders to furnish the capital for extensions. With companies whose stock sells at a high premium no difficulty is experienced in raising large amounts of capital from the stockholders. The method is to sell the stock at par, giving the holders the privilege, measured by the difference between the par and the market value. The Great Northern and the Lackawanna have, within the last fortnight, announced subscriptions of this character. With companies whose stock sells below par, however, it is difficult and indeed practically impossible without special legislative action, to dispose of new shares. The outlook for the financing of this class of companies is not promising.

Although the outlook for the railroads in 1913 is not all that could be desired in view of difficulties with operating expenses, financing and rates, current developments are by no means discouraging. The most recent information from a number of leading companies affords a basis for a more optimistic feeling. The Milwaukee and St. Paul, for example, which had such an unfortunate year in 1911, made a substantial improvement during the present year. For October the gross earnings of the St. Paul and Puget Sound combined, were $1,685,862 better than last year, and the increase in the net earnings of the two roads aggregated $1,209,787.

The Missouri Pacific, which had a most unfortunate year ending June 30, 1912, in the four months of the current fiscal year to October 31st, shows an increase in surplus over fixed charges of $2,094,000 over the results of the corresponding period of 1911. The company is, moreover, saving about 70 per cent of the increase in gross earnings for the stock.

The Wabash is making rapid improvement. Officials of the company predict a total of $32,000,000 in gross earnings for the current fiscal year, or $1,500,000 in excess of any previous twelve months. The company, during the remainder of the year, will receive the benefit from a large amount of new equipment and from the second track and other improvement work now in progress. Without the benefit of these expenditures in the three months to September 30 the company earned $183,000 over all fixed charges.

Another Gould property, the Wheeling and Lake Erie, is making a favorable showing. In November the company's gross revenues increased 12.2 per cent, as compared with the same month in 1911, and 22.3 per cent, as compared with 1910. For the year ending June 30th, 1912, the total fixed charges and taxes aggregated only $1,499,274, and in five months net earnings have been $1,421,029. In other words, the company has already earned its full interest requirements.

These figures of railway earnings are especially significant because they are reported by companies whose finances were generally admitted to be seriously depressed during 1911. The fact that they have been able to make such a remarkable recovery shows that from the standpoint of earnings, the railway situation of the country is thoroughly sound. This conclusion is enforced by the figures for 100 roads for October reported to the *Wall Street Journal*. The operated mileage covered by these roads equalled 196,816 miles, as compared with 193,440 miles for October, 1911. The gross earnings of the 100 roads showed an increase of $31,796,552 and an increase in net earnings of $12,931,002.

As Mr. Hill pointed out, if only the necessary facilities can be provided to take care of the enormous increase in traffic, which the existing agencies for the production of traffic are now ready to furnish, the railroads of the United States will enter upon the most prosperous period in their history.

President Underwood's Solution of the High Cost of Living.

F. D. Underwood, president of the Erie Railroad, who is recognized as possessing free trade tendencies of a decided character, offers as a solution of the high cost of living, the advisability of placing export tariffs on all products produced in this country and taking the import tariff off all products of foreign countries that are necessary to feed, clothe and add to the comfort, but not luxury, of our citizens. In a recent press interview he says:

"Every time we ship a million bushels of wheat abroad the American people have to pay a higher price for the balance retained for their own consumption. The same is true of meats, wool, coal and every commodity. Why should we permit coal to be shipped out of the country and deprive unborn generations of their supply unless foreigners are willing to pay the Government a handsome duty for the privilege of securing it? Why steel, meats, grain and other things we produce? Why increase the cost to ourselves in order to help other nations out? Also, why should an import duty be imposed on foreign commodities actually needed by the American public?

"They say it is to protect the American workingman. That is a fallacy. The American working man is well able to take care of himself as witness the rates of pay of $5 per day for engineers, $4 for conductors, and so on down the scale. Also $7 to $4 per day for nearly all other classes of good labor, and the regularity with which they get more whenever they think they need it. The only working man whom the tariff protects is the foreign element. The others need no help in looking after their own interests. Look at the common laborers on the railroads and in the steel mills. They are all foreigners who exploit America, receive high wages, live on 30 cents a day and when they have made enough money go back to the old country to live in luxury, or at least comfort.

Effect of State Regulation.

President Sproul, of the Southern Pacific, in a recent address at a banquet of the San Francisco Chamber of Commerce, stated that the Southern Pacific pays 25 per cent. of the direct taxes paid by the State of California and that 70 per cent. out of every dollar of its earnings inside the State is given directly to the people through the payment of wages and the purchase of local supplies.

In the course of his address he stated that the reduction of $2,000,000 said to have been made in railway earnings during the year by State regulation really meant that $40,000,000 of improvements and betterments in the service were lacking as a result of this reduction in rates.

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Operation

THE INTERSTATE COMMERCE COMMISSION ON RAILWAY ACCIDENTS.

IT did not require the annual report of the Interstate Commerce Commission—which is chiefly notable because of the fact that the greatest emphasis is placed upon this subject—to make it apparent that the most serious problem in the field of operation concerns the prevention of accidents. From every side evidence forces itself upon the observer that the movement for the conservation of human life and of the property of the shipper and of the railroads has become a popular issue. The activity of the various state commissions and of the Interstate Commerce Commission in investigating the accidents which have occurred from time to time is matched in kind by the serious attention and energetic efforts of the railroads themselves to find a solution for this most serious question.

The Interstate Commerce Commission's study of the accident problem, according to its annual report, "has proceeded far enough to indicate the need of more effective measures than thus far have been taken to secure safety of railroad travel." The Commission's figures show that of the total of 8,215 derailments during the year, 1,877 were caused by defects of roadway, and 3,847 were due to defective equipment. These figures indicate an increase over the previous year of 652 derailments due to bad roadway, and 1,023 due to defective equipment. Of the 31 derailments investigated, which it should be parenthetically noted were the most serious, involving in each case passenger trains, 14 were either directly or indirectly caused by bad track. According to the Commission, 5 out of these 14 derailments would probably have been avoided had existing speed restrictions been observed; but in the remaining cases no adequate speed restrictions were in force. In three of the cases the track conditions were so obviously unsafe that derailments were likely to occur even when trains were running at low speed. In one serious derailment an examination of the track in the vicinity of the accident disclosed 906 rotten ties within a distance of 147 rail lengths.

Notable Effect of Steel Car.

The rapid introduction of steel cars, which the Commission states is progressing "as rapidly as conditions will permit" is bringing about a situation in which "the danger from the use of unsound cars is gradually disappearing." Summarized briefly the findings of fact of the Commission as to the cause of accidents can be grouped under three heads:

(1) Accidents caused by the dereliction of duty by the employes involved.

(2) Accidents due to excessive speed and endeavors to make schedule time.

(3) Derailments due to defective roadway and the use of unsound rails.

The Commission rightly says that "the most disquieting and perplexing feature in the problem of accident prevention is the large proportion of train accidents caused by dereliction of duty by the employes involved." The Commission believes that "as a rule there are no men that have a keener appreciation of their responsibility than railroad trainmen and enginemen," and yet it is pointed out that "sixty-three per cent of the whole number of accidents investigated were caused by the mistakes of employes." "There is a disposition in some quarters," continues the report, "to charge these lamentable errors to failure of discipline and to hold employes wholly responsible for such failure. This is a superficial view which contains no promise of effective remedy. A remarkable increase in the weight of trains within recent years and crowding of tracks and terminals caused by the movement of an enormously enlarged volume of traffic have greatly increased the duties and responsibilities of train service employes and multiplied the chances of error on their part. Notwithstanding these added duties and responsibilities which the conditions of modern railroading have imposed upon employes, the methods of discipline and regulations calculated to insure safety in train operation have remained practically unchanged."

The Commission further points out that excessive speed has been an important factor in many train accidents and "that conditions of safe operation are often ignored in an effort to bring fast trains in on time. This is a bad practice for which the traveling public is largely responsible, and it should be discontinued. Adequate measures should be taken to compel low speed wherever conditions require it whether schedules are maintained or not."

The Human Problem.

"To prevent collisions adequate measures must be taken, first, to reduce the chances of human error to a minimum, and, second, to neutralize the effect of such error when it occurs. The recommendations previously made for legislation requiring the standardization of operating rules and the use of the block system were designed to reduce probability of mistakes by employes, and those recommendations are once more presented for consideration of the Congress. Uniformity and consistency in operating rules are necessary to secure safety, and it is not probable that a satisfactory code which will meet the demands of modern operating conditions can be secured without appropriate action by the Federal Government."

"Safety first," is the paramount rule of train operation suggested. "Rules which a few years ago were perhaps reasonable and proper remain in force, although it is well known that they are no longer consistent with the demands of traffic, and it too often happens that these solescent rules which place entire responsibility for safety upon employes who are already overburdened are the only measures relied upon to avert possible disaster."

Commission Has No New Remedies.

At first glance, and as construed by a large proportion of the daily press, the conclusions of the Commission upon the accident problem constitutes an indictment of the railroads. A careful analysis of the report will convince any one, however, that aside from pointing out facts already well known concerning the cause of accidents and

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repeating its recommendations concerning block signals and standardization of operating rules, the Commission offers nothing important or practicable by way of solution. It either is baffled by the problem which is presented or it feels that the question is one which cannot be worked out in any manner except by the railways themselves.

Commissioner McChord's Views.

A comparison of the language of the accident portion of the report of the Commission with the paper read a few weeks ago by Commissioner McChord at the First Co-operative Safety Congress held under the auspices of Iron and Steel Electrical Engineers shows that the greater proportion of the report is taken bodily from this address. While it is not safe to assume that the Commission has adopted Mr. McChord's views in their entirety, yet it seems likely that his analysis of the problem will, speaking generally, coincide with that of his associates. As Commissioner McChord remarks an analysis of the accident bulletins shows unmistakably "that by far the greater number of these harrowing train accidents are due to human error," nor are these errors confined entirely to those lines operating under the train order system for a considerable proportion of them occur upon lines in which the block system has been installed. "Some of the worst collisions noted in the accident bulletins have occurred on block signal roads. Obviously the block system can only afford protection when its danger warnings are observed and obeyed. The intensity of attention and quickness of perception required of enginemen on our modern, high speed trains lead to the results that they sometimes fail to observe or obey signal indications, and when this happens disastrous consequences are almost sure to follow. In the operation of the manual block system also, block operators sometimes make mistakes which lead to fatal results."

Necessity for Investigation.

Continuing, the Commissioner declares that "the investigations have not yet proceeded far enough to indicate the need of any specific legislation other than that which has already been proposed, but that they have confirmed the need of a law for the compulsory use of the block system, and for the use of automatic stops in certain situations, as also for a uniform code of signals and rules, a bill providing for which has already been introduced in Congress." He also believes that "failure of railway officials to determine with scientific accuracy the limits of safety, especially with respect to speed on curves, no doubt has led to many derailments There are no accurate engineering data showing the actual stresses which are set up in railway track structures by locomotives and cars of different weights and moving at different rates of speed. . . . . There is urgent need of accurate information on this point." He is further of the opinion that the drop test as provided in current specifications for the manufacture of rails "does not reveal the presence of interior defects of a serious character. There is urgent need of reform in the requirements of specifications as well as in the methods of inspection at the mills, so as to insure that structurally sound rails will be obtained."

Commissioner McChord very properly concludes that "no specific cure for these disasters can be offered, for none is at hand," and "that in the working out of this problem of greater safety on railroads we shall get no aid from the study of railroads of other countries. Our problem is essentially peculiar to this country and must be solved in the light of conditions existing here. The most difficult and perplexing factor in this problem is the personal equation. The failure of the man at the critical moment is the thing to be guarded against and this involves generally a reformation in the method of discipline and rules of operation."

The Real Solution.

Particular emphasis ought to be laid upon the closing paragraph of the Commissioner's address, in which he declares that great possibilities in the solution of the problem lie in the organization of so-called "safety committees." "These are new features in the administration of many prominent roads and the slogan 'safety first' has become a watchword in the details of their operation. In making safety the dominant idea in the minds of employes, by continually talking about it and pointing out methods for its attainment, an important step in the right direction is taken It is necessary for the employe to think right before he can act right. These safety committees are also bound to be an important factor in reawakening in employes that old time feeling of personal interest and pride in the record of 'our road,' that has been so largely dissipated by modern railroad development. In short, co-operation for definite results along the line is bound to result from the well directed efforts of these committees."

SUCCESS OF LEHIGH VALLEY'S SAFETY PLAN.

IN striking confirmation of Commissoner McChord's view concerning the safety committee is the experience of the Lehigh Valley Railroad with this plan. This company has organized a general safety committee composed of the general manager, superintendent of motive power, maintenance of way engineer and whatever other officers or employes the general manager may appoint. In addition to this general committee there has been organized a divisional safety committee for each division. On these divisional committees there is an engineer, a fireman, a conductor, a trainman, a switchman, an agent, and a foreman—in other words, a representative from every branch of the service. The division committee has a regular meeting twice a month. The members not only report upon their own observations, but transmit suggestions from employes. In addition, many valuable suggesions come through the mail. These communications are always acknowledged, and the matters referred to are always investigated. An employe who makes a suggestion receives a report from the committee as to just what has been done with it, and if it is not adopted he is told the reasons why. The man on each division who makes the best suggestion towards increased safety of operation is rewarded by one month's vacation with pay in addition to an "honor button." Annual passes are granted to employes with clear records for an entire year.

Each member of the divisional committee is charged with the duty of keeping a sharp watch for imperfections in either physical property or operation, as he goes about his regular duty. Noth-

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ing is to be too small for him to take account of, and he is to be especially watchful to detect carelessness and to use his influence upon his fellow employes to prevent the recurrence of such practices. He is to discourage taking chances, pointing out to the men the extent of suffering inflicted upon wives and children every year as the result of such accidents. Statistics are compiled from the reports of the Interstate Commerce Commission for the use of the divisional safety committees in this work.

While it is yet too early for the company to be able to form any definite conclusions as to the tangible results of this work, yet sufficient time has elapsed to show that this supplementary work in accident prevention has been particularly effective in reducing the number of so-called "little" accidents. These accidents, although they do not attract great attention when they occur, are responsible for the larger proportion of the total loss of life and property in each year.

RAILWAY COMMISSIONERS ON RAIL BREAKAGE.

THE "Committee on Rails and Equipment" of the National Association of Railway Commissioners has presented an interesting report on the causes of rail breakage and the means by which the quality of rails may be improved. This committee was composed of one member each from the Up-State Commission in New York and from the Indiana and Minnesota commissions. The committee, which was appointed several months ago, was requested by the President of the Association to determine "whether the question of government inspection may not be desirable both in the matter of manufacturing rails and the construction of equipment, and perhaps legislation enacted requiring a rigid inspection and more uniformity in the specifications used by different factories. It may be profitable to inquire whether a different character of rail may not be needed in those sections of the country where the climate is subjected to extreme changes of heat and cold than in the more temperate climates."

Causes of Rail Failures.

It is the finding of the committee that rail failures do not differ essentially from those experienced in the past. "The problems of rail failures and rail wear are continuous ones and have always been serious, and will probably always remain so." The committee points out that on many of the smaller roads and branch lines there are practically no rail failures. "The problem appears to be principally confined to railroads which handle a large tonnage of heavy and fast traffic." The matter of rail breakage is due, in the opinion of the committee, to the increasingly heavy traffic, high speeds and increasing wheel weights. The committee reports that the statistics of accidents resulting from rail failures are incomplete and unsatisfactory, and that there is a wide difference in opinion among railway men as to the causes. Moreover, the committee is of the opinion that the danger from broken rails is not so great as is generally supposed. "The statistics for a ten-year period indicate very small percentage of casualties from broken rails, compared with the total accidents to passengers and employes Broken rail accidents are much less serious, as measured by casualties and destruction of property, than collisions."

The Importance of Cold Weather.

Commissioner Sague, of the committee, in his remarks to the Convention, stated that "the principal reason for winter breakage, as compared with summer breakage, is what we may call the anvil effect. The roadbed is frozen, the elasticity of summer ceases, and the hard, unyielding roadbed produces the effect which we find with excessive road breakage in the winter." The facts brought out by the committee show that there is a larger number of rail failures in the roads of the far north and northwest than on those farther south, and that in the State of New York there are from 364 to 895 failures per month in January, February and March, and about 200 per month for the other nine months of the year. The committee quotes with approval from the report prepared by Mr. P. H. Dudley for the American Railway Engineering Association, in which he asserts that "in many localities the greatest breakage of rails on descending gradients is where the speed of the present trains approximates 80 to 90 miles per hour. Rails of the same make on the opposite track in ascending gradients, where the same equipment runs over them at the slower speeds, have not broken during the late extreme weather."

High speed schedules in winter, in connection with defective track and equipment, is found to be the cause of much rail breakage. Train delays are more frequent in winter, with the result that there is greater pressure to make up time wherever possible. The Federal Government, the committee says, is responsible for high speeds to the extent that it has encouraged speed competition in fast mail service, which has sometimes led to reckless running. "There has also been some tendency by State Commissions to order additional stops without due consideration of the increase in speed which such stops demand. . . . . We think the railroads will receive public support in adopting schedules and practices which will keep trains moving more uniformly on time, as we believe that more criticism is caused by the sidetracking of local trains to permit delayed through trains to pass, than is ever compensated for by public approval of fast service." The action of the Pennsylvania and New York Central Railroads in lengthening the schedule of their New York to Chicago specials from 18 to 20 hours, is given unqualified approval. The committee also believes that the demand for all-steel trains, bringing about an increase in wheel weights, is largely responsible for the increased rail breakage. The committee says that "the facilities for maintaining the heavier rolling stock, especially locomotives, have not kept pace with the increased weight and size."

Summary of Conclusions.

Summing up its conclusions, the committee finds that the principal causes for the increased frequency of rail breakage as compared with the past are, (1) the increase of over 60 per cent in proportion of phosphorus in the finished rail,—that is, from 0.06 to 0.10 per cent—owing to the gradual exhaustion of pure ore suitable for the Bessemer process of manufacture; (2) the rapid increase of wheel weights and speed brought about by traffic requirements, "which has resulted in more severe conditions of service than have ever before been experienced in railroad history."

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Remedies Suggested.

It is the belief of the committee that the following methods will be found most effective in reducing rail breakage:

(a) Improved maintenance of equipment, especially of wheels, and reduction of the number of worn and flat wheels; the improved balancing of locomotives, improved track design and maintenance, including more effective drainage.

(b) The substitution of open-hearth for Bessemer steel, with consequent reduction of phosphorous.

(c) Improved methods of manufacture, especially directed to secure sound ingots, sufficient discard to remove the segregated and defective metal at the top of the ingot.

(d) Heavier rails and improved sections, and especially sections with heavier bases.

(e) Rigid specifications and careful inspection of all details of manufacture.

Disapproval of Government Inspection.

The final conclusions of the committee briefly summarized are as follows:

(a) "That present conditions do not require the inspection by the Government of rails and equipment, or legislation concerning specifications or inspection.

(b) "The most effective governmental method of securing continued improvement in the rail situation is the careful and thorough investigation of all important accidents which may be caused by rail breakage. In this connection, it is desirable that each States commission should keep informed as thoroughly as may be practicable regarding the rail failures upon the lines under its supervision.

(c) "The Government tests of rails and ingots, which were begun a few years ago, should be continued, and special study should be given to rail steel made by the basic open-hearth process".

The entire report is well worth reading by railroad officials. It will be printed in full in the proceedings of the Convention and copies can be secured from William H. Connolly, Secretary of the Association and Chief Clerk of the Interstate Commerce Commission.

SUCCESS OF NORTH-WESTERN SAFETY WORK.

THE Chicago and North-Western Railway is credited with being the pioneer in the promotion of safety campaign. Since the organization of its work, twenty months ago, 145,000 out of a total of some 240,000 miles of railroad have taken up the campaign. The North-Western's results thus far show that there has been a reduction of 29.9 per cent in the number of employes killed, 31.4 per cent in the number of employes injured, 36.3 per cent in the number of passengers killed, and 16 per cent in the number of passengers injured.

It is the opinion of the "Railway World" that in campaigns of this character by railways among their employes must lie, to a large degree, the solution of the accident problem. A certain proportion of accidents cannot be prevented, for among the thousands of cars and locomotives, the millions of tons of rails, and the labyrinth of switches, cross overs, and other special work, it is inconceivable that mechanical imperfections and defects shall not arise. The most perfect block system which has ever been devised is not mechanically error proof. When to all of these physical and inerradicable causes of accidents must be added the element of human frailty, the fatal moment of indecision or forgetfulness and the unconscious or deliberate disobedience of orders, one is forced to the conclusion that a distressingly large number of accidents is an inevitable feature of railway operation. But the truth is, as universally contended, that there are entirely too many such accidents and that railways, after having expended untold millions of dollars in better equipment, tracks and signal systems, are apparently no nearer a solution of the problem than at the beginning. The difficulty is that the sense of individual responsibility of the employe has been dulled. He has ceased being careful himself and has relied upon others to watch out for him. Until a spirit of individual responsibility and continual watchfulness are recreated the annual slaughter will continue.

RESULTS OF OFFICIAL INVESTIGATIONS OF RECENT WRECKS.

IT is interesting and instructive to run over the reports of the experts of some of the State commissions and of the Interstate Commerce Commission containing the results of their investigations of some of the most serious wrecks that have occurred.

Findings in New Haven Wrecks.

Commissioner McChord, of the Interstate Commerce Commission, in reporting upon the wreck at West Port, Connecticut, on October 2, finds that this accident was a duplicate of that to the Federal Express at Bridgeport, Connecticut, in July last. The West Port wreck was due, in the opinion of the Commissioner, to excessive speed of the train in passing a cross-over from one track to another. "The Commission is satisfied that the neglect to comply with the recommendations in its report on the Bridgeport wreck was largely a contributing cause of the Westport accident and its accompanying loss of life. The recommendations of this Commission are not mandatory. If, however, they are ignored and neglected and large loss of life results therefrom, there can be little doubt of our duty plainly to report it. If railroad directors and managing officials remain passive and give to such occurrences no such serious consideration as the situation demands, then it becomes the duty of public officials bluntly and plainly to point out to them their duties as trustees of the safety of the traveling public. The appalling railroad catastrophes of the last few years call upon all connected with railroad management for more strenuous efforts to secure safety for those who travel."

The Commissioner recommends that automatic train control be installed to insure safety in running trains at high speed. In the absence of such automatic control, the Commissioner suggested, switches should not be set to divert a high-speed train from one track to another at a cross-over which is not safe for high speed, until the train has been stopped; also that on interlocking plants where trains are operated over facing switches, approach locking should be provided to prevent switches being changed.

Mr. Ellwell, the Chief Engineer of the Public Utilities Commission of Connecticut, in his report concerning the wreck of the Merchants' Limited Express on the New Haven at Green's Farms, on November 15th, completely exonerated

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the company from any responsibility therefor. In his judgment, the wreck was caused by a broken equalizer bar on a dining car. This bar dropped on the roadbed, making a plainly discernible track for a considerable distance before coming to the switch where the derailment occurred It is Mr. Eliwell's belief that the bar, dragging through the switch disarranged the points and derailed the cars following. He finds that the rails, ties and switch-fastenings at the point of wreck were in good condition. He says that at a joint hearing with the Interstate Commerce Commission, it was conclusively shown that the defect in the equalizer bar could not have been seen at any car inspection. He recommends that railroad companies make frequent special examination of equipment for the purpose of locating defects in metal parts therein. The New Haven issued a public statement seting forth the findings of fact in connection with the Green's Farm wreck, in which it is stated that "The company feels that it should make clear to the public that the standard of track construction and maintenance on this line is of the highest character, frequent and regular inspection being made by adequate maintenance forces."

The Pennsylvania Wreck at Glenlock.

One of the most interesting wrecks, from a scientific standpoint, occurring during the past month—if any wreck can be interesting—is that which occurred upon the Main Line of the Pennsylvania Railroad at Glenlock, a few miles west of Philadelphia, on November 27th. There is a slight curve at the point where the wreck occurred, but no cross-overs or special work of any kind. The train in question was a double-header, fast through train with twelve steel coaches and Pullmans. It was six minutes late at the point where the accident occurred and was traveling at the rate of 48 miles per hour. The wreck was immediately investigated by the Marshal of the Pennsylvania State Railroad Commission, by a committee of railroad officials and mechanics appointed by the Pennsylvania Railroad Company and by the experts of the Interstate Commerce Commission. The first two investigators have made their reports, while the Interstate Commerce Commission has not yet published its conclusions. Both of the published reports agree that the wreck was in some measure affected by the rupture of a cover plate on the bridge over the Trenton cut-off, while crossing which the train left the track. The rupture of this plate permitted the superimposed box girder located in the center of the bridge and carrying the span at that point, to drop down 18 inches.

The Marshal of the State Railroad Commission finds that six minutes before the derailment a train of seventy-five empty coal cars had passed over the bridge; that physical and chemical tests show that the plate had been fractured before the weight of the ill-fated passenger train brought about its final rupture. The break in the plate was practically hidden by the girders and angle bars, and it would have required an inspection of a very searching character to have discovered the fracture. The special committee appointed by the General Manager of the Pennsylvania Railroad expresses the belief that the primary cause of the wreck was an obstruction of an unknown nature on the tracks east of the bridge. It is the theory of the committee that the striking of the obstruction resulted in a shock and jar sufficient to cause a rupture of the cover plate of one of the latticed steel posts supporting the bridge in its center. The committee finds that the bridge received its regular inspection on November 18, nine days before the wreck and that the very day before the wreck a deflection test had been satisfactorily made. There had, in addition, been the usual daily inspection of track and bridge by track walkers and foremen. The committee reports that "We cannot definitely determine whether this rupture was due solely to the superimposed load or some antecedent cause, but there is the evidence of two witnesses that the first indication of the derailment occurred when the train was at a point immediately east of the bridge, where they saw a large amount of fire flying from under the lead engine on train No. 19. This, coupled with the evidence of both enginemen on train No. 19 that they made no application of the air brake at that point, would lead to the conclusion that the train struck an obstruction. The design of the structure prevented a disclosure of the rupture of the cover plate under the usual inspection, except at the front and rear ends of the plate where the accumulation of paint would have a tendency to obscure the same This detail fracture had no observable effect upon the stability or strength of the structure as is evidenced by the results of the deflection test made the day before the wreck occurred. This test was made with the bridge under load of passing trains and did not disclose any weakness in the structure."

Report of Indiana Commission on the C. H. & D. Wreck.

The Railroad Commission of Indiana, in its report upon the wreck which occurred upon the Cincinnati, Hamilton and Dayton Railroad at Irvington, on November 13th, does not attempt to fix the degree of personal responsibility for the wreck, but finds that it was due to the carelessness of the engineer and head brakeman of the freight train which had been ordered to take a siding to allow a passenger train from Cincinnati to pass. The train crew of the freight failed to close the switch after the train had passed on the siding, with the result that the passenger train ran head-on into the freight and sixteen persons were killed and many injured. The Commission finds that if the company had used steel cars in the ill-fated train that the loss of life would have been less severe.

BUREAU OF STANDARDS ON ADDITIONAL RAIL TESTS.

AN interesting sidelight on the general question of improving the quality of rails is contained in the report of Dr. Howard, the Chief Inspector of Safety Appliances and the engineer-physicist of the Bureau of Standards in his report on the results of his investigation of the derailment on the New York Central near Hyde Park, New York, last March. In this report it is asserted that this wreck, like a number of others, was probably the result of streaks or seams in the steel. A large percentage of rail fractures occur in the crosswise direction, and it is contended that the present steel rail specifications do not require tests in the directions in which rails most commonly fail. It is asserted that the omission of crosswise bending tests is a serious matter and that the specifications should be revised to include such a trial

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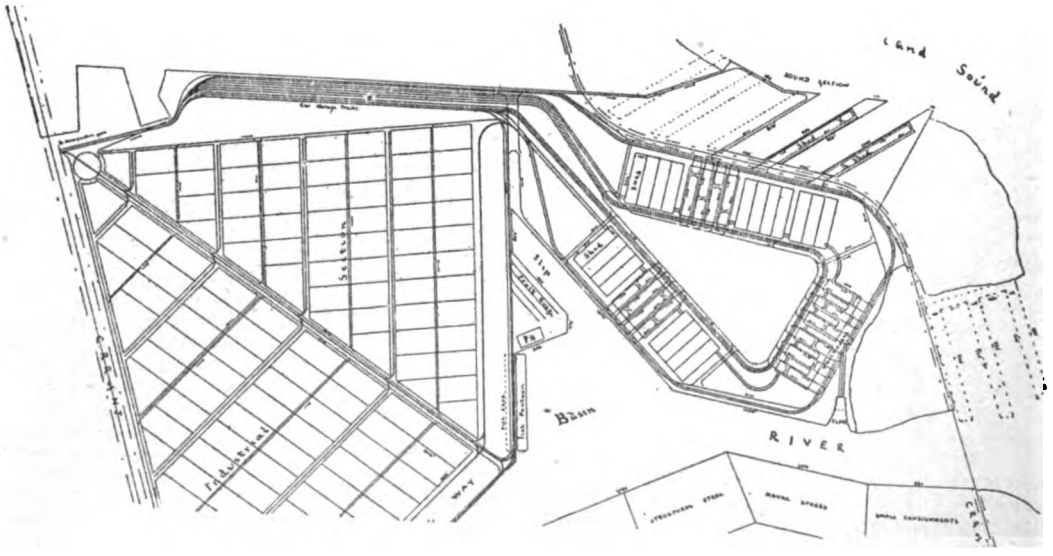
Mechanical

MECHANICAL TRANSFERRAGE AT RAILWAY SHOPS AND TERMINALS.

ALMOST timely topic, in view of the agitation and large plans now under way for the improvement of dock facilities in New York Harbor, was admirably treated by Mr. H. McL. Harding, consulting engineer of the Department of Docks of New York City, in his paper on "Mechanical Transferrage at Railway Shops and Terminals," read before the meeting of the Western Railway Club, held on November 19th. In connection with this paper, Mr. Harding presented some interesting diagrams showing the ideal arrangement of freight terminals, the most important of which are reproduced herewith. After pointing out that the great advantage of mechanical transferrage devices must be found in the rapidity and economy with which they handle freight and the degree by which they increase the capacity of terminal facilities, Mr. Harding emphasizes the fact that there is no uniform plan which is most advisable under all conditions, but that it is necessary to make a careful study of terminal operating conditions in each case before adopting any machinery or determining upon the best plan. In some cases machinery can be most satisfactorily installed overhead, while under other conditions it is preferable to provide surface machinery or to locate it under the surface. Again, the various types of machinery possess varying advantages under different working conditions. In determining the question of the tyne of machinery that is best suited, the author states that any proposed machine should be tested according to three standards: "(1) that the machinery itself should be able to serve every cubic foot of space; (2) that the machinery should do this without any re-handling by manual labor; (3) that there should be continuous rapidity." The machine which most satisfactorily meets all of these conditions is the best machine under the circumstances. He pointed out that the traveling crane met admirably the first two conditions, but that it was not satisfactory under most conditions for use in terminal work because it was not sufficiently rapid. In addition, it was necessary for the designer of terminal piers and sheds to keep in mind the various classes of freight to be handled. The author found that there was a wide difference in the average weight of consignments, in their bulk and in the character of their product, all of which had a vital influence in determining the most satisfactory type of machine.

Having reviewed the various working conditions which are encountered, the author next proceeded to take up the various familiar forms of labor saving devices and outline the points of advantage and limitations of each. Mr. Harding also pointed out that the plan of the terminal itself, wherever possible, should be prepared after the particular type of machine which is found to be the best suited for the traffic to be handled has been determined in order that any special features in the construction of the building, which may be necessary to accommodate the particular type of mechanical conveyor, may be provided in the original construction, and in order that the building may be so planned as to admit of the most economical and expeditious handling of freight therein. The plans which he exhibited and which are shown in the accompanying illustrations indicate the most advanced thought of the Department of Docks of New York City concerning the best arrangement of a mechanically equipped marine terminal in that city It will be noticed that the sheds have an auxiliary floor, or, in other words, that they are to a large degree two-story. Through these upper floors at proper intervals are located hatchways, enabling the conveyor to lower freight to the lower level, or, in other words, to the platforms on the level of the car



TERMINAL LAYOUT.

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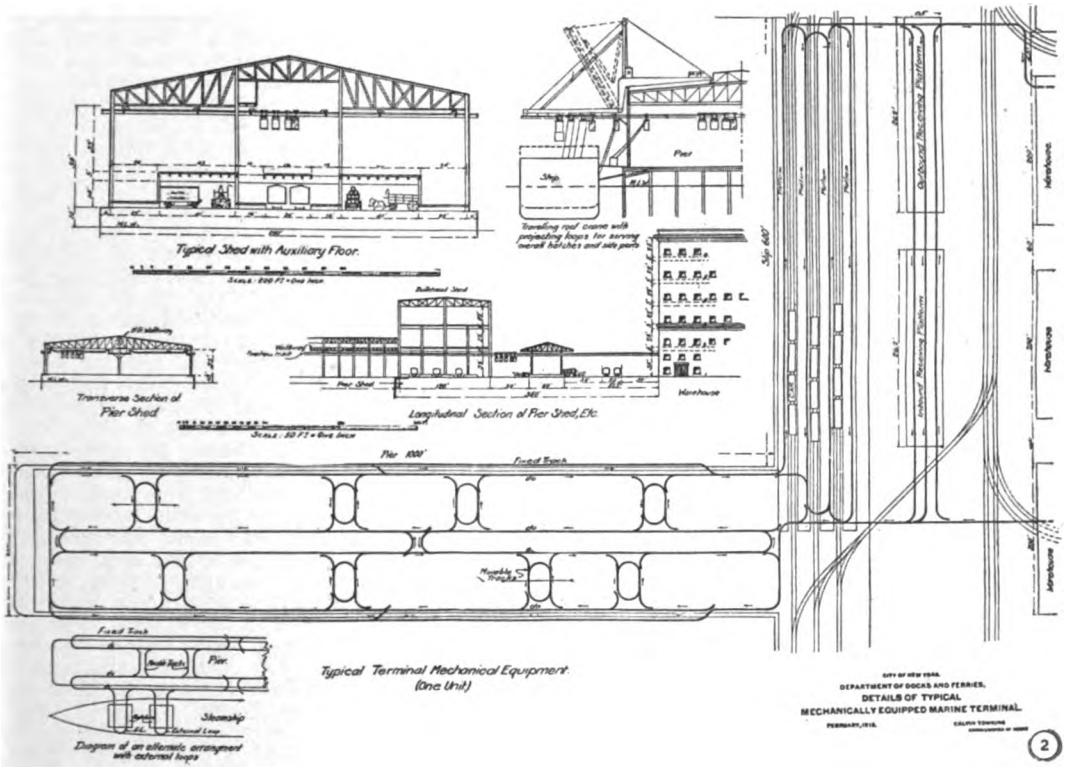
Typical Shed with Auxiliary Floor.
Transverse Section of Pier Shed
Longitudinal Section of Pier Shed, Etc.
Typical Terminal Mechanical Equipment (One Unit)
DEPARTMENT OF DOCKS AND FERRIES.
DETAILS OF TYPICAL MECHANICALLY EQUIPPED MARINE TERMINAL.
Diagram of an alternate arrangement with external bays

DETAILS OF TYPICAL MECHANICALLY EQUIPPED MARINE TERMINAL.

floors, or for loading drays and automobile trucks. The proposed plan provides a larger storage capacity than would otherwise be possible. The absence of pillars is a noticeable feature of the plan, the roof being carried on trusses, practically eliminating supporting posts. The arrangement of tracks is also interesting. The number of switches, it will be observed, has been kept down to the minimum and the curves, wherever possible, are made of long radius. The location of movable tracks for the mechanical handling of the trucks as contrasted with the fixed tracks for freight cars is an interesting detail. The proposed installation of a traveling crane with projecting loops for serving over all hatches and side ports is also an interesting feature.

FURTHER LIGHT ON RECENT FIRE BOX TESTS.

THE recent interesting tests held at Coatesville, Pa., to determine the relative advantages of an ordinary radial-stay fire box as contrasted with the sectional type of fire box (the Jacob-Shupert fire box) have aroused considerable discussion among railway men. A recent meeting of the New York Railway Club was given up to a discussion of this subject and to a paper thereon by Mr. A. W. Whiteford. It will be remembered that these tests were for the purpose of determining, first, the relative steaming qualities of the two types of boilers, and, second, the relative safety of the two boilers where unusually low water prevails and the crown sheets are bare. These tests were made under the direction of Dr. W. F. M. Goss, of the University of Illinois Engineering Department. The tests showed, in brief, that at ordinary rates of power both types of fire box give practically the same economy and the same percentage of tonnage evaporation for the entire boiler. At higher rates of power, the sectional construction shows a slightly better rate of efficiency when coal is used as fuel, but when oil is used as fuel, there appears to be no difference in the evaporative performance. The second series of tests to determine the relative safety of the two types of boiler under low water conditions were the most interesting. In these tests, the water was gradually evaporated until there was either a failure of the boiler, as occurred with the radial-stay type, or there was so little water remaining that sufficient steam could not be generated to operate the blower in the stack, as was the case with the sectional type The effect of these tests upon the fire boxes of the two boilers is shown in the accompanying illustrations. The radial-stay boiler, as is clearly shown, failed under the low water test. There was a violent explosion which raised the rear of the boiler, blew out the arch brick, tore loose the cast iron pedestals and disrupted the brick work under the boiler. As is seen by the illustration, a considerable section of the crown failed—in all, 188 crown stays and stay bolts gave way. The button headed stays failed by breaking at the sheet and the flat-headed stays pulling through the sheet. The sheet itself

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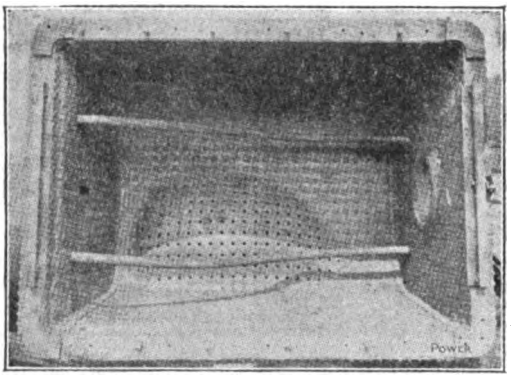


CROWN OR RADIAL STAY FIREBOX AFTER FAILURE.

did not rupture or crack. The contents of the boiler were discharged through the openings made by the stay holes, the aggregate area of which approximated 186 square inches. A considerable portion of the crown gave evidence of scaling from the effects of the heat.

As contrasted with the condition of this boiler, the sectional type, as has already been said, passed through the test successfully. Dr. Goss's examination led him to the conclusion that the boiler was in condition for operation after the test was concluded and that there was no doubt that, in so far as safety was concerned, the sectional type had demonstrated itself to be much superior to the radial-stay type. The crown sheet of the sectional boiler, as it appeared after the test, is shown in the accompanying illustration. It will be seen that it is intact—in fact, only one very minor leak developed.

Dr. Goss, in addition to conducting these tests, made a service inspection of sectional fire boxes which had been in use for some time upon various railroad systems. His conclusions from this inspection are as follows:

"1. The construction of the sectional fire box admits of easy and thorough inspection.

"2. The sectional fire box gives no trouble by leaking at the mud ring. Not a single case of a leaky mud ring could be found. The fireboxes give no trouble by leaking between sections.

"3. No indication could be found of grooving or cracking at the fillet or in any other part of the sections making up the fire box.

"4. The fire boxes examined, while very large, appeared to resist perfectly the pressure imposed, which in all cases was above 200 pounds.

"5. The fire box structure of a sectional boiler after a year of service in a district of alkali water appeared as though new, while that of a radial-stay boiler in the same service, for the same or a lesser length of time, presented unmistakable evidences of degeneration.

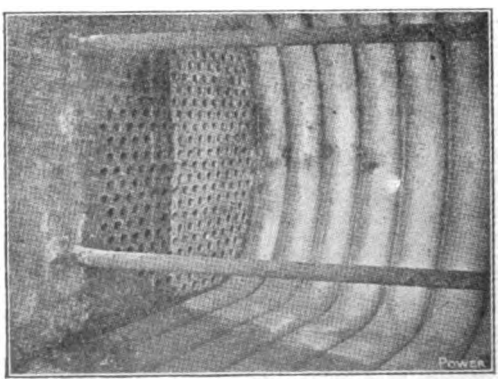
"6. Evidence was not lacking to prove that minor defects, such as those which may arise in a sectional boiler from accumulation of scale or because of low water, are easily repaired.

"7. Since the inspection, it has been reported that defects have appeared in some of the older sectional boilers. These have arisen from the faulty arrangement of longitudinal stays. In the boilers affected, the back head is braced by comparatively short stays, secured to certain of the outside or wrapping sheet sections. The sections being curved, are not well situated to meet the loads imposed by the stays, and it is not surprising that some of them have suffered. The obvious remedy is to be found in extending all longitudinal stays through to the throat sheet, or to the barrel of the boiler. By so doing, they will be removed from connection with the sections."

The discussion before the New York Railway Club of the results secured by sectional fire boxes was very interesting. The chief objection heretofore made to the sectional firebox was that it is difficult to clean; that scale and mud accumulate on the crown sheet and in other places, and that it cannot be dislodged in the ordinary manner. Mr. A. McGill, Shop Superintendent of the Lehigh Valley Railroad at Sayre, Pa., stated that he had under his jurisdiction three 10-wheel freight locomotives equipped with sectional fire boxes which had been in service five months and had made approximately fifteen thousand miles, or one-third of the normal distance made by locomotives of this type between shoppings. Continuing he stated that "We have been informed by critics of the fire box that we would have difficulty in washing the boiler and various other troubles; therefore, we studied the matter very carefully in advance, and, in our opinion, there were some objectionable features, namely, the straight flue sheet and the method of securing or tieing the sheets at the mud ring. These features we have overcome by using a flanged flue sheet and by having the sections butt jointed at the mud ring, and by welding the same by the oxy-acetylene process, which practically made continuous sheets inside and out.

"We found no difficulty whatsoever in washing out the boilers, and did not have to employ any means of washing other than the common method employed in any roundhouse, namely, the water pressure, hose and nozzle. Little, if any, scale accumulated during the five months the engines were in service. We were, however, prepared to remove it very easily by simple methods. We found we could remove the scale by the insertion of a chain through the washout plug holes, and by simply rattling the chain back and forth, reach the rivet heads and seams.

"Aside from the regular inspection of the boilers, as they were being washed, we have had several special inspections to learn what was taking place in the way of scale formations. From these inspections, our conclusion was that scale forms very much less rapidly than in the radial-stayed



CROWN OR SECTIONAL FIREBOX AFTER LOW WATER TEST.

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boxes, as we found more scale in other types of fire boxes which were put in service about the same time the sectional boxes were, were run in the same districts, used the same water and were operated under the same conditions.

"We have not made any tests to ascertain what economy of fuel we obtained; but we are simply working out a maintenance test, putting the locomotives with these boxes in hard service and working them in comparison with other locomotives of the same weight. So far, the maintenance has shown up decidedly in favor of the sectional fire box, and we do not feel that we made any mistake in recommending a trial on our road."

MIKADOS VS. CONSOLIDATIONS.

THE Delaware, Lackawanna and Western has recently completed a most interesting series of tests concerning the relative economy of operation of a heavy and powerful class of Mikado type locomotive of the latest design and of the Consolidation locomotive of the ordinary conventional design, which has been used by this company for a number of years. The tests were not, strictly speaking, scientific in character, but were simply working comparisons to determine the relative efficiency of the two types of locomotives with respect to fuel and water consumption, loads and speeds under the same operating conditions. The observations were made on the Buffalo division between Elmira and East Buffalo, a distance of 141 miles. Records were kept of four runs of each class of locomotive—two in each direction. The Consolidation locomotives were comparatively new and had been in service only a year and were in good repair. So far as age and condition were concerned, the advantage was in favor of the Mikados, for they were new, having just been received from the American Locomotive Company. Offsetting this advantage to a certain degree, was the fact that the enginemen were not entirely familiar with the operations of the new locomotives. Two firemen were used on the Consolidations, in accordance with the regular practice, while one fireman handled the Mikados. In the test no attempt was made to set up special conditions, the regular crews being used and they being instructed to follow their ordinary methods.

The general result of these tests showed a saving of from 29 per cent to 32 per cent in coal and 27 per cent in water per ton mile in favor of the Mikados, although these locomotives were 32 per cent heavier.

Taking as the basis of comparison, first, the average results of the total distance traveled in the trials, in other words, the two westbound and the two eastbound trips, the comparative performance was as follows: The Mikados steamed freely and handled the train perfectly at all times. They burned from 19 per cent to 21 per cent less coal per trip than the Consolidations and they pulled from 11 per cent to 16 per cent heavier trains. On the westbound trips there was little difference in the total running time as between the two types, although the Mikados averaged forty minutes less delayed time. On the eastbound journey, the Mikados took heavier trains over the road in considerably less time than the Consolidations

Considering only the comparative performance of the two classes of locomotives westbound between Elmira and Wayland, the Mikados showed the ability to haul an 11 per cent heavier train at 2½ per cent higher speed and of 23½ per cent less coal consumption than the Consolidations. The stretch of 62½ miles consists of an easy ascent averaging about 0.2 per cent, with some short down grades and level stretches. The comparison of the results secured between Groveland and Wayland, a distance of 14 miles, all but two miles of which is an ascending grade averaging 1.09 per cent, in which Consolidations were used as helpers for both classes of locomotives, it was found that the Mikados hauled practically 18 per cent more tonnage than the Consolidations at the same speed, and burned a little less coal. The Mikado type locomotive represented the latest product of this class of the American Locomotive Company, being equipped with fire tube superheaters, having a superheating surface of 1,085 square feet, and brick arches. The Consolidations used in the test had neither superheaters, nor were they equipped with brick arches. They represented as to type the common conventional practice for such locomotives.

FACTORS IN THE SELECTION OF LOCOMOTIVES AS REGARDS ECONOMICAL OPERATION.

MR. O. S. BEYER, of the Rock Island lines, in a paper before the American Society of Mechanical Engineers, has outlined most fully the various factors which should be considered in the selection of locomotives with respect to economical operation under varying conditions After reviewing briefly the various physical conditions under which locomotives are used and which must have an influence upon their design and character, Mr. Beyer reviewed briefly the various types and sizes of locomotives now in use, at the same time indicating generally the conditions under which each type is used. He also brought out some of the main limitations upon each type of locomotive and showed how these limitations frequently made it unwise for a railroad to adopt a particular type which might give excellent service upon some other road having slightly different characteristics. The author has collected and presented in connection with his report interesting tabular information concerning the dimensions of certain typical types of locomotives. It was the belief of the author that the determination of the type of locomotive most economical under any given condition was one that could be arrived at from the results of tests and information derived from the records of the company. A great deal of this information could be secured by the careful selection of statistical data where a given type of locomotive was used by another railroad company operating under approximately the same conditions. Once this information was collected—and Mr. Beyer advocated that it be gotten by each item of operating expenses as provided in standard accounting classifications prescribed by the Interstate Commerce Commission—it would be possible to arrive at an accurate re-

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sult. He declared that "Taking each one of the items into consideration, estimating the reduction in train mileage effected by each type, the gross savings in operating expenses effected based on the amounts of business on hand or in sight, and deducting therefrom all overhead charges arising from the additional improvements necessary to make the operation of the different types of locomotive under comparison practical, will reveal which particular locomotive is the most economical in size and type.

"As far as a standard engine of any kind for an entire road is concerned, the general conditions obtaining will have some bearing A road may, for instance, be composed partly of divisions whose grades are moderate and partly of divisions whose grades are severe. If the variations are not great, a compromise standard might be adopted. If, on the other hand, there is a large difference, it may be wiser to seek to establish two or three standards and confine each to a particular territory with a view to getting the maximum efficiency from every portion of the property. Then again there are many shorter territories, such as pusher grades and divisions through mountainous country, the motive power selection for which is a distinctly local problem. In every case, whether it is the broad problem of establishing standards for the entire system, or selecting an engine for a local territory, the problem might well be reduced to an economic study, comparing several available types and sizes, the extent of the improvements necessary to make their operation practical, and the net savings which it is estimated will be effected by their introduction.

Summary.

"In designing new locomotives, all of the conditions must first be analyzed and then the design made to suit them. The actual design of the engine finally chosen may be approached with confidence because of accumulated knowledge and experience. Due to the great possibilities of favorably effecting operating results by building locomotives which are exactly suited to their work, a study of the conditions becomes vitally important. The fact that the most powerful locomotives of most approved design are also the most economical should be more generally appreciated. It is to be hoped that the future will see more advantage taken of the modern locomotive in accordance with its possibilities in relation to grade revision and its ability to reduce operating expenses to a minimum. The ultimate benefits which will result will certainly be justified to the fullest extent"

INTERESTING EXPERIMENTS WITH HIGH-SPEED PASSENGER LOCOMOTIVES.

SOME most interesting information concerning the comparative advantages of Atlantic and Pacific type locomotives, of different models for high speed service was furnished by Mr. Gaetano Lanza, of the Baldwin Locomotive Works, in a paper read before the Franklin Institute, and appearing in the Journal of that society for December, 1912. The tests in question were made by the Baldwin Locomotive Works for the purpose of determining the relative efficiency of four locomotives, the first of which, No. 675, was a three-cylinder, 19 inches by 24 inches; 74-inch drivers; 10-wheel Pacific type (4-6-0) locomotive weighing, with its tender, 178 tons; using steam of a low degree of superheat and hand-fired. The characteristics of the other three locomotives were as follows:

No. 300: 3-cylinder, 19 inches by 24 inches; 80-inch drivers; Atlantic type (4-4-2); weighing with tender 172 tons; using steam of a low degree of superheat and hand-fired.

No. 301: 2-cylinder, 22 inches by 22 inches; 80-inch drivers; Atlantic type (4-4-2); weighing with tender 170 tons; using steam of a low degree of superheat and hand-fired.

No. 302: 2-cylinder, 22 inches by 26 inches; 80-inch drivers; Atlantic type (4-4-2); weighing with tender 170 tons; using saturated steam and hand-fired.

All of the runs were made in regular service between Philadelphia and Jersey City, a distance of 90 miles each way; the locomotives being run on an express train in one direction and returning with a local in the opposite direction.

The summarized results of the tests were as follows:

No. of engine.	No. of trips.	No. of cars.	Average indicated horse-power.	Average dynamometer horse-power.	Average speed in miles per hour.	Average drawbar pull in pounds.	Average coal per indicated horse-power. Hour. Lbs.	Average coal per dynamometer horse-power. Hour. Lbs.	Average water per indicated horse-power. Hour. Lbs.	Average water per dynamometer horse-power. Hour. Lbs.	Degrees of superheat above boiler steam. (Fahrenheit).
675	3	8	1360	857.0	57.40	5414	4.50	7.13	28.0	44.36	51
		8	1293	816.7	54.93	5513	4.48	7.10	27.9	44.22	0
		8	1261	820.4	54.91	5536	4.36	6.57	27.8	42.58	60
300	5	8	1343	870.0	56.00	5730	4.70	7.28	24.2	37.48	65
		8	1162	850.0	56.70	5550	5.52	7.54	28.8	39.60	65
		8	1377	943.3	56.81	6120	4.52	6.66	25.0	36.46	61
		8	1312	909.6	55.10	6180	5.22	7.36	24.6	34.74	71
		8	1386	945.5	56.60	6120	5.42	7.96	23.7	34.79	66
301	3	8	1319	889.4	57.14	5706	4.52	6.71	24.3	36.54	41
		8	1211	869.4	54.30	5910	4.98	6.98	27.7	38.89	51
		8	1155	870.0	53.38	5970	5.35	7.10	29.1	40.61	46
302	3	8	1414	857.6	56.20	5640	4.51	7.21	24.8	39.85	0
		8	1264	868.8	53.74	6000	4.75	6.91	26.0	38.99	0
		8	1133	892.5	57.32	5760	4.81	6.06	33.4	42.12	0

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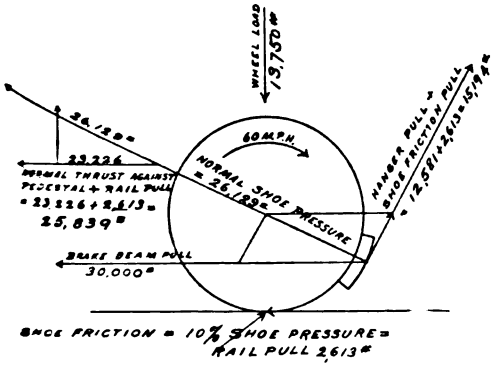
It will be seen by an analysis of the above table that engine No 300, or the 3-cylinder Atlantic type, exceeded the others included in the trial, especially the last two types, both in average dynamometer horse power and in the average drawbar pull. At the same time, the coal consumption of this locomotive per indicated horse power, was the highest of any of those used in the tests. The water consumption, on the other hand, per indicated horse power, did not run as high, per the case of some of the other locomotives, particularly the Pacific type engine and the 2-cylinder Atlantic type using a low grade of superheat. Professor Lanza did not analyze the results but simply presented them for the consideration of his auditors, nor did he attempt to indicate which locomotive, in his opinion, was best suited for the particular conditions under which the trials were made.

WHEEL SLIDING UNDER HEAVY PASSENGER EQUIPMENT.

THE increase in the weight of passenger equipment, resulting from the introduction of the steel car, has brought with it new problems for the mechanical department of which one of the most serious concerns the effect of breaking upon trucks and wheels. This subject has been given a great deal of study by Mr. John P. Kelly, of the New York Central, the results of which were presented in a paper read before the Central Railway Club. After reviewing the engineering theory, which must be kept in mind in connection with the question of the allowable brake shoe pressures, Mr. Kelly proceeded to take up the results of the application of this theory and of his study and observation. He pointed out that there was a tremendous advantage in favor of the trucks equipped with equalizing springs in passing over a track slightly uneven, as is necessarily always the case, as contrasted with the truck equipped with solid struts in place of such springs. It was his conclusion that wherever passenger equipment was used in high speed work that the equalizing spring was enabled to perform the service which it theoretically should perform, of allowing the wheel to drop quickly into slight depressions in the track. The result was that there was a temporary cessation of rail pressure, and the brake shoe, during this time, slowed down the wheel exactly as it did where a solid strut was used, so that when the wheel again hit the former level, it was going so slowly as to lock and skid until the train stopped.



The accompanying illustration shows clearly the stresses and strains to which the several parts of the truck are subjected under such conditions. According to Mr. Kelly, the stresses which prevent the proper action of the equalizing spring work out in practice as follows:

"When the wheel does not go to a lower point in the track, the equalizing spring would have a tension in it of 12,150 pounds (total weight the wheel carries to rail being in this case say 13,750 pounds) the spring supported weight, plus 5,447 pounds from the vertical pull of the brake hanger making a total of 17,597 pounds. This tension is resisted by the tension between the oil box and pedestal, 6,968 pounds, plus 12,414 pounds vertical pull, plus the shoe friction, 2,612.9 pounds, or a total resistance of say 21,994 pounds. This means that the equalizing spring has actually become a strut and cannot push the wheel downward and therefore the wheel can only get down as fast as gravity alone can take it, and, as shown this would permit the wheel to travel a distance of 30 inches horizontally over one sixty-fourth inch depressed track with practically no weight on it, and of course give the brake shoe all the chance needed to slow down very materially its rotation.

"While this illustration is an extreme one, yet it is closely approached in some instances in practice, so that with the equalizing springs unable to perform their functions properly, with the transference of weight from one pair of wheels to another in the same trucks during the retarding of the motion of the car and with the slippery condition of rail from frost and other causes, it will be seen that our margin against wheel sliding in heavy brake applications on heavy passenger equipment is about nil."

He believed that there was very little difference, with heavy equipment running at high speed, between the strut equipped brake and those fitted with equalizing springs, and that therefore there was little or no margin of wheel sliding against heavy truck balanced on heavy equipment running at high speed. It was his opinion that it would be necessary to design a type of brake and brake rigging which will interfere to a smaller degree with the equalizing springs and enable them to perform their proper functions with the same efficiency while the brakes are closed as while they are released.

SCIENTIFIC RAIL TESTS IN PROGRESS.

THE Rail Committee of the American Railway Engineering Association is engaged in making some exhaustive and very careful tests in conjunction with the members of the Civil Engineering Department of Lehigh University in the engineering laboratory of that institution. The tests are, in a sense, a co-operative arrangement by which the manufacturers of steel rails furnish the material and facilities for research work and the railroads and the University fur-

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nish the engineering skill to conduct the tests. Some of the results of these tests have already been published. The series of tests which are now going on involve the investigation of the rate of reduction of the cross-section in rolling from the ingot to the finished rail. One hundred pieces of 100-pound American Railway Association section two feet long are being used. The results of these tests will, no doubt, throw considerable light upon the causes of rail failures and the possibilities of improvement in the methods of manufacture.

SERVICE TESTS OF TITANIUM RAILS.

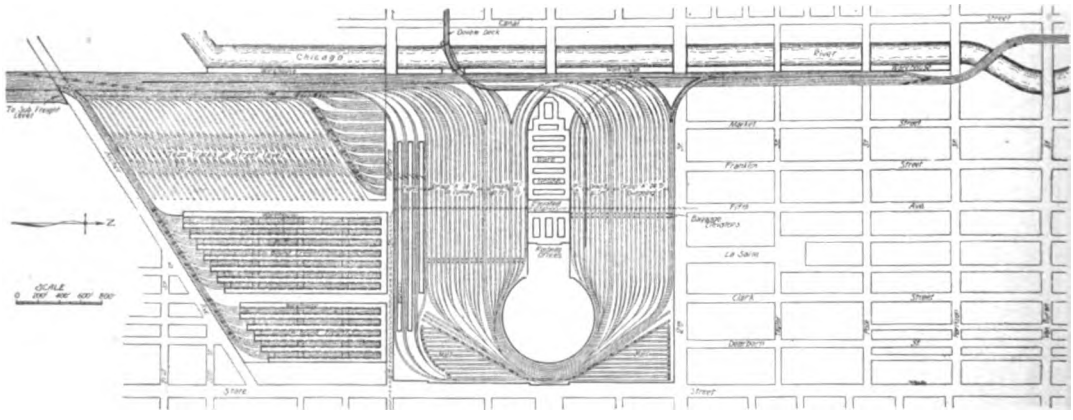
THE results of some interesting service tests which have been made by various railroads with titanium rails have been collected and published by the *Railway Age Gazette*. The first test reported was made by the Delaware and Hudson at Howe's Cave, New York, covering a period of 16½ months. This test was made on two curves. "Ordinary open hearth rails were laid on a 3 deg. 30 min. curve, while titanium open hearth rails were laid on a 4 deg. 8 min. The traffic over each curve was the same, and the weight of all rails was 90 pounds to the yard. On the high side of the curves, the average rate of wear was .2825 sq. in. for the plain open hearth and .1825 sq. in. for the titanium treated rails. For the low side of the curve, the plain open hearth showed an average wear of .145 sq. in. and the titanium treated, .09 sq. in. In the treatment of these rails .01 per cent of metallic titanium was used From this it appears that the rate of wear of the untreated open hearth rails was something more than 50 per cent greater than it was with the titanium treated rails."

A very similar test was made by the Boston Elevated Railway on a curve of 100 feet radius, for a period of 214 days. The service conditions at this point were so severe that ordinary rails wore out in a very short space of time. The result of this test showed, generally, that the wear of the untreated rail was about 50 per cent faster than that of the treated rail. The final test reported was that conducted by the New York Central on its Hudson River division. In this case no open hearth or Bessemer rails were used, the entire track being laid with open hearth titanium rails weighing 100 pounds to the yard, and laid on curves of 3 deg. and 2 deg. 15 min. These rails had been on the track for two years and had carried a total tonnage of about thirty-eight million tons, much of it at a very high rate of speed. "In the case of the 3 deg. curve, the wear on the outside rail at the worst place was .14 sq. in., or at the rate of .0037 sq. in. per 1,000,000 tons, while on the 2 deg. 15 min. curve it has been at the rate of but .0013 sq. in. per 1,000,000 tons. In the latter case, the wear has been the greatest on the inside rail, due probably to the heavy freight trains that passed over it.

These results are uniformly good and it should seem that with such a record there should be no hesitation in regard to the matter. However, there is a difference of opinion as to the benefits to be derived from the titanium treatment due to the fact that a few failures to secure the desired results, but only in Bessemer rails, have been reported. The failure of these rails, after a very careful and painstaking investigation, can be traced to the lack of care on the part of the mills in using the ferro-titanium in the proper manner. However, as a whole, the examples taken from practice go to show that the service which is being rendered by titanium treated rails is better than that of the untreated product, for which the simple claim is made that the deoxidation of the metal makes it more dense and, therefore, better able to resist wear, while at the same time, as it is stronger, it is less liable to break than the same grade of metal which has not been treated in this manner."

PROPOSED UNION TERMINAL IN CHICAGO.

THE vexed question of providing adequate terminal and freight facilities in Chicago for the various railroads centering therein, which has brought forth many suggestions, none of which so far have apparently won the approval of the various parties interested, has prompted Mr. Jarvis Hunt, of Chicago, an architect of considerable experience and prominence, to propose



(Courtesy of the Railway and Engineering Review.)

PROPOSED CHICAGO TERMINAL.

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a plan for a Union Terminal, the main details of which are shown in the accompanying cut. This proposal has the advantage that no additional real estate must be acquired by the associated railways, their present holdings between State street, Canal street, Thirteenth street and Sixteenth street being utilized. In order to make this tract available, it is proposed that the Chicago River be diverted from its present course in this vicinity by eliminating the curve which now exists at this point,—in other words, a cut-off would be dug, moving the river over almost to Canal street. This would enable a large terminal to be located with its center almost where the maximum curvature in the river is at present. Mr. Hunt's plan calls for a joint passenger and freight terminal, built on the loop principle, with a sepaarte set of platforms for in-coming passengers and other sets of platforms for out-going passengers. The present railroad business of Chicago amounts to 118 passenger trains per hour. The new terminal contemplated in this plan would accommodate not less than 600 trains per hour. The freight station facilities of the city have now about 3½ miles of platform accessible to wagons. The new terminal would provide 21 miles of wagon accommodation at the freight house. In fact, the new station would increase the passenger and freight facilities about six-fold. Mr. Hunt believes that funds for the construction of this terminal could be provided entirely from the sale of land now occupied for station purposes, which would be released by this consolidation movement. The plan involves the substitution of electricity for the present motive power in both freight and terminal work. This feature of the proposal is a more serious matter than that of the terminal itself, for the large expenditure which would be involved cannot even be estimated until a careful study has been made of the question.

PROLONGING THE LIFE OF CROSS TIES.

MAINTENANCE of way engineers will be much interested in the report of Mr. Howard F. Weiss, Assistant Director of the Forest Products Laboratory, upon prolonging the life of cross ties (United States Department of Agriculture, Forest Service Bulletin No. 118). This report goes thoroughly into all of the various methods of tie preservation heretofore generally used and gives, by way of illustration, the results secured, in so far as ascertainable, with each process. The various factors which lead to failure with each method of tie treating is explained, together with some suggestions by which these errors may be avoided. On the whole, therefore, the report is a condensed text on the subject of tie preservation and the way in which it should be handled. Considerable space is given to the subject of tie plates and the advantages resulting from their use in connection with treated ties. The various factors which enter into the question of a satisfactory tie plate and the advantages arising from the use of various kinds of spikes for rail fastening are gone into with considerable detail.

in importance in direct proportion to the number of ties treated with preservative. Chief among these objections are (1) unequal bearing afforded tie plates and rails, (2) lack of uniform volume, and (3) unnecessary waste of valuable material."

Getting down to the results secured from treating ties, the author states that "practically all of the ties now treated in commercial plants in the United States are injected with zinc chloride or with creosote, either alone or in combination. Only a few plants use preservatives like crude oil and mercuric chloride It is customary to inject about one-half pound of dry zinc chloride per cubic foot of wood, although this varies at times from one-third to two-thirds of a pound. This salt costs from 3⅞ to 5 cents per pound. Creosote costs from about 6 to 10 cents per gallon in large quantities. It is customary in tie work to inject from 5 to 12 pounds of this oil per cubic foot."

The following figures are presented showing the cost of tie treating under average conditions by each method:

APPROXIMATE COST OF PRESERVING TIES (7" BY 9" BY 8').

Kind of Treatment.		Cost of Treatment.					
Preservative.	Amt. injected (per cu. ft.)	Seasoning.	Labor.	Fuel.	Maintenance.	Chemicals.	Total.
Creosote	10	$0.01	$0.06	$0.01	$0.015	$0.279	$0.375
do	6	.01	.06	.01	.015	.168	.263
Zinc chloride	½	.01	.06	.01	.016	.070	.166
Creosote Zinc chloride	3 ½	.01	.06	.01	.016	.154	.250

HEWED VS. SAWED TIES.

Concerning the much-mooted question of the relative advantages of hewed vs. sawed ties, Mr. Weiss comments as follows: "The claim is often made that hewed ties are more durable than sawed ties because they shed water better. Nothing is known by the Forest Service to substantiate this impression. Even if untreated hewed ties should be more durable than sawed ones, this advantage disappears when the ties are treated. On the other hand, there are many serious objections to the use of hewed ties, and these are increasing

As to the increase in durability of treated ties as compared with those which are untreated, Mr. Weiss states that, generally, the treating of ties prolongs their life from 100 to 500 per cent. "With zinc chloride, which is a soluble salt and tends to keep the ties moist, and hence weaker under repeated impact and compression, this increase in life will probably be somewhat less."

Railroad men will be interested in the results of his investigation as to the experience of various railways with treated ties. The following table contains the author's investigation of this point.

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Species.	Laid by—	How treated	Life. Years.
White oaks	Duluth & Iron Range Ry. Co.	Untreated	8 to 9
Spruce	Union Ry. Co. (horse)	Burnettized	8 to 20
Pine (probably western yellow, longleaf, and pinon pines)	A., T. & S. F. Ry. Co.	do	10½ to 15
	T. & N. O. Ry. Co	do	10 to 11
	H. & T. C. Ry. Co.	Creosoted	19
Baltic pine	English railroads	do	8 to 18
Hemlock	C. R. R. of N. J.	do	15½
	C., R. I. & P. Ry. Co.	Wellhouse	10 to 15
Tamarack	Duluth & Iron Range Ry. Co.	Burnettized	8 to 10
	do	do	9 1-5
	Pittsburgh, Ft. Wayne & Chicago Ry. Co.	Wellhouse	8.84
Beech	French, German, and Austrian railroads.	Untreated	4 to 5
		Burnettized	10 to 12
		Creosoted	18 to 30
Maple	C. R. R. of N. J.	Burnettized	15+
	German railroads	do	16
Red oaks	Wabash R. R.	do	5 to 6
	French and German railroads	Creosoted	19 to 25

The conclusions of the author, which represent the results of investigation by the Forest Service over a number of years, are interesting and valuable. Mr. Weiss does not desire to have these conclusions taken as representing the final results which can be obtained, for he frankly states that the subject is one in which a large amount of experimentation and observation is yet to be done. Summarized, his conclusions are as follows:

(1) That winter cutting of ties should be encouraged because there is smaller danger of insect injury and decay. Bark should be removed from ties immediately after they are cut.

(2) Preference should be given to sawed ties because there is a smaller forest waste and they are more satisfactory in actual use; if ties are to be adzed or bored, this should be done before they are treated; all ties should be thoroughly seasoned before treatment, and, if possible, air seasoning should be used.

(3) It is always cheaper to use treated than untreated ties, except, perhaps, where black locust, redwood, cedar and cypress ties are available in nearby localities.

(4) In selecting ties for treatment, preference should be given to those which are hard and which absorb the preservative readily. Treated red oak, beech, maple and gum ties will give better service than treated chestnut, spruce and white pine ties; sapwood is just as strong as heartwood and much easier to inject with preservatives.

(5) At present it is not known definitely what preservative or process is most economical in all cases. Preservative should be analyzed frequently, as it changes considerably after a number of treatments.

(6) A nine-sixteenth inch diamond-pointed cut spike, if driven into a previously bored hole three-eighths to seven-sixteenths inch in diameter, will hold better than an ordinary cut spike driven directly into the tie.

(7) From the results thus far obtained, it appears advisable to use screw spikes wherever possible; where used, a hole should be first bored deeper than the maximum penetration of the spike.

CAR SHORTAGE LESS SEVERE.

IT is gratifying to be able to record that according to the statistics issued by the American Railway Association there is a decrease in the car shortage which was threatening to become a very serious matter. The report as of December 14th, shows that there is a net shortage of idle cars on the lines of the United States and Canada of 34,392 as compared with a shortage of 51,112 on November 21st. In other words, there has been an improvement in conditions of 16,720 cars, most of which are box and coal cars. An analysis of the statistics show that the increase in flat car surplus is general throughout the country except in a few States in the Southwest. Coal car surplus also shows a general increase. The increase in box car surplus has occurred generally in the Western and Southern States. The decrease in box car shortage is general except in some South Central States and on a few Canadian lines. The decrease in coal car shortage is also general with the exception of in the Virginias and the Carolinas and the extreme Western States. While under normal conditions it was to be expected that there would be a decrease in car shortage during the period under review, yet the results, as a whole, are very encouraging, and as a criterion of the activity of business, it is one of the most encouraging signs which can be pointed to. The record of car surplus and shortage for practically the entire year is shown graphically in the accompanying chart:

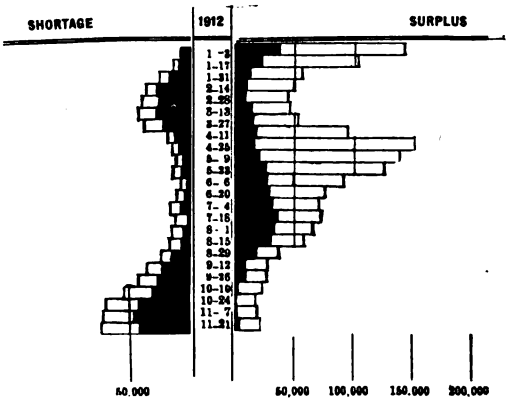

DIAGRAM OF CAR SHORTAGE AND SURPLUS DURING 1912.

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Electrical

DENVER AND RIO GRANDE TO ELECTRIFY ITS MOUNTAIN LINES.

ONE of the most important announcements which has been made by a railway management in the calendar year just closed was that of Vice-President Brown of the Denver and Rio Grande Railroad, that this system would immediately begin the electrification of its mountain lines. This is the first transcontinental line to utilize electricity on a large scale in train operation. The first unit to be electrified will be from Helper, Utah, to Salt Lake City, 114 miles. The second unit will be over Tennessee Pass, the great Continental Divide in Colorado, and will involve the electrification of the line from Salida to Minturn, Colorado, a distance of 87 miles.

The Utah work will be commenced early in 1913, and it is hoped that it will be completed by the time the new two per cent detour line over Soldier Summit is finished, in July of this year. The Utah Utilities Company is to furnish the power for the Utah lines, and the Central Colorado Power Company will probably furnish the electricity for the Colorado lines. The cost of the improvements to be undertaken by the Denver and Rio Grande, the Central Colorado Power Company, and the Utah Utilities Company will aggregate between twenty and twenty-five million dollars, most of which will be required in 1913 and 1914.

It is anticipated that other units, in addition to the two mentioned, will be added from time to time, and that perhaps eventually the entire system will be operated by electricity generated by the great power in the torrents now coursing down the mountain sides and which is only waiting to be harnessed.

This transition from steam to electric power is by far the most important plan yet announced by the new management of the Denver and Rio Grande.

ELECTRIFICATION FOR 1912 AND THE OUTLOOK FOR THE NEW YEAR.

AT the end of the year 1912, it is interesting to compare the plans which are now under way, or have been announced, for the electrification of railroad lines as recorded in the "Electrical Railway Journal."

"In the order of their importance and considering now only railroad electrification in America on main-line roads, for complete passenger and freight service over full engine stages, at the end of 1913 the following showing will be made:

"The New Haven electrification will be completed between New York and New Haven; also on one of the most extensive freight switching and classification yards in the country on the Harlem River-New Rochelle branch and on the Boston and Providence four-track main line in all about 650 miles of electrified and single track road.

"The Denver and Rio Grande Railroad will have from 115 miles to 215 miles of electrified track.

"The next important electrified railroads in America, in the same class, are now the Piedmont and Northern, 130 route miles; Illinois Traction, 417 route miles; Fort Dodge, DesMoines and Southern, 130 route miles, Northern Electric Railway of California, 116 route miles, and the well-known Spokane and Inland Empire Railroad, with 183 route miles—five roads in which the freight, express and switching revenue tends to equal or exceed the passenger revenue.

"Further down the list are the West Jersey and Seashore and similar heavy passenger roads without electric freight service, following which come many short electric freight and passenger railroads and the switching and terminal roads.

"Considerable money is being spent on electrification. The Prussian State Railroad administration has ordered 568 locomotives for the complete freight and passenger service on the Berlin Stadtbahn, which will extend many miles out in the country, and a liberal appropriation has been added for the Magdeburg-Leipzig road. The French Western Railway administration has recently ordered 100 electric locomotives.

"The New Haven Railroad directors have this year expended about $12,000,000 for electrification. The Boston and Providence Railroad has authorized an expenditure of about $7,000,000. The Butte, Anaconda and Pacific directors have authorized an expenditure of $1,000,000 for the electrification of their short freight and passenger road, but here the heaviest part of the work, on the grades, will still be handled by steam locomotives. The Denver and Rio Grande Railroad has appropriated $6,000,000 for electrification, and this will require the Utah Utilities Company and the Central Colorado Company to expend equal amounts in increasing their equipment to furnish electrical energy to this road and to other roads in Utah and Colorado which are to be electrified.

"Altogether the outlook is good. One of the favorable features in connection with the electrification of several roads is found in two newspaper statements, one by Vice-President Byrnes of the New Haven road, who, with reference to the Boston and Providence electrification said: 'This is not a compulsory electrification, but is done because it ought to be done to increase the efficiency of the road,' and the second by Vice-President Brown of the Denver and Rio Grande, who stated, 'Our plans are in the interest of economy in operating expenses.'"

GAS-ELECTRIC CARS UNDER CONSTRUCTION.

THE General Electric Company has under construction in its Erie shops a considerable number of gas-electric cars for various railroad systems. Cars are being built for the Missouri and North Arkansas; the Texas Midland; the Pittsburg and Lake Erie; the Rock Island, and the 'Frisco systems. The 'Frisco system is one of the largest users of this type of car, having seventeen of this type running regularly on its branch lines. It is stated that 40 per cent of the roads which have heretofore ordered this type of car have placed orders for additional cars after observing the operations of the first consignment.

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WIRELESS LOCOMOTIVE CONTROL.

RAILWAY officials are much interested in a test now being conducted by the Canadian Pacific Railway on a stretch of line in the suburbs of Toronto of a safety wireless device of locomotive control which would make it impossible for an engineman to run past a danger signal or over a broken rail or into an obstruction. The section of track on which the test is conducted is two miles in length, with a westbound grade of about 1 per cent. Over this line about 30 passenger trains and a much larger number of freight trains are operated every twenty-four hours. The stretch of track used in this test, was divided into four blocks or sections, varying from 2,500 to 4,500 feet. These were separated by the usual method of insulator joints. A wooden trunking containing the wires is laid midway between the rails and runs the length of each block. At the end of each block is a generator of wireless waves of very high frequency. The operation of this system of train control is described by Allan G. Wood, consulting engineer of Railway and Locomotive Engineering, who witnessed a portion of the tests, as follows:

"This generator of wireless waves is controlled by the alternating track circuits of the block in advance, and as long as the block in advance is not short circuited or broken, the wave generator which it controls is sending high frequency wireless waves along the blocks in the rear. A broken rail or open switch will stop the wave generator which it controls, thus placing the block in the rear at danger, by the absence of the wave.

"On the engine, which is equipped with the receiving apparatus, are four harps or antennæ. The main harps are located one under the center of the engine and the other under the tender, the one under the engine being sixteen feet long and the one under the tender twelve feet long. These harps contain each twelve copper wires and are suspended about eight and a half inches above the trunking in the center of the track. There are also two other antennae known as the counterpoise or pickup antennæ, one under the right hand steam chest of the engine and the other on the left hand side between the axle boxes of the tender. These harps are raised the same distance above the track as those under the center of the engine.

"Connected to these harps ars highly insulated wires which run to the apparatus on the running board of the engine, immediately in front of the cab. These wires are connected with tuning coils to which are connected the wireless wave responder. . . . . The responder operates the master relay, which in turn energizes the solenoids and controlling valves on the whistle line in the cab, the train line valve, the airbrake system and the bull's eye flashlights in front of the engineer in the cab The energy for the engine apparatus is supplied by two 250 ampere hour storage batteries which have to be renewed about once in three weeks."

Describing the tests which he witnessed, and which consisted of running a train of thirteen cars at an estimated speed of 20 miles per hour, through the blocks under varying conditions, Mr. Wood states that:

"When the train passed onto the pickup wire at Parkdale subway the whistle on the cab ceased blowing, the red light went out and the green light was shown in the bull's-eye.. The speed was gradually increased as the grade was climbed until an estimated speed of forty-five miles per hour was attained.

"By this time, the train was in the Wallace Avenue block, near Bloor street, when a motor car was purposely run into the block in advance at Royce avenue, this being the surprise danger test of signal. The green light extinguished, the red light illumined, the whistle started to blow, the train line valve was opened and automatically the brakes started to apply. During all this time the throttle was wide open, the steam gauge registering 180 pounds, the engineer's airbrake valve being in running position. The airbrake gauge showed a gradual reduction in the train line of eighteen pounds in thirty seconds, and the train was brought to a standstill in thirty-five rail lengths."

Several other similar tests were made and the same general results secured in each. According to Mr. Wood, "The maintenance of this system per block since the first of June, 1911, as shown by the records, has been five cents per day, power being purchased The cost of installing the engine apparatus varies from $250 to $500 per engine."

PENNSYLVANIA TO TRAIN MEN IN OPERATION OF MOTORS.

EMPLOYES of the operating department of the Pennsylvania Railroad in Baltimore have been instructed to report in Philadelphia at regular intervals for the purpose of receiving instructions in the handling of electric motors. While no official announcement is made as to the reason for this move, the explanation generally ascribed for it is that it presages the electrification within the next year or so of the Philadelphia, Baltimore and Washington branch of the Pennsylvania system running between Philadelphia and Baltimore by the way of Chester and Wilmington and also to West Chester.

LONDON AND SOUTHWESTERN PLANNING ELECTRIFICATION.

IT is officially announced that the directors of the London and Southwestern have approved plans for the electrification of their lines in the neighborhood of London. The work will be commenced next year and will be completed in about two years. It is believed that this move is prompted by the success of the London-Brighton and South Coast Railway, in winning back the traffic which it had formerly lost under steam operation to the electric tramways operating under municipal control.

NEW PENNSYLVANIA INTERURBAN LINE.

THE Lehigh Valley Transit Company, in conjunction with the Philadelphia and Western Railway, has opened a through express electric service between Philadelphia and Allentown, Pa., a distance of 62 miles. This line, a considerable portion of which was reconstructed for this purpose, is regarded as one of the finest electric railways east of the Allegheny Mountains. In every town through which the line passes a commodious depot will be built and baggage carried under the same rules as by steam roads. The round trip to Allentown is $1.00 less by the electric than by the steam lines

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The Interstate Commerce Commission

THE COMMISSION'S ANNUAL REPORT.

DECEMBER was a busy month for the Interstate Commerce Commission, numerous hearings were held and a large number of orders and decisions published. Among the important developments was the transmission of its annual report to Congress, a large part of which is devoted to an analysis of the causes of casualties in railroading. This feature of the report will be found more fully dealt with in another section of this issue, as will other important matters discussed. The Commission hold substantially that many of the accidents resulting in fatalities might have been averted by the employment of suitable devices and good equipment. It might be pertinent to suggest in this particular that had the Commission adopted a more liberal policy with regard to railway freight rates, and had the railroads not been compelled to exert the utmost conservatism in the employment of capital for improvements and equipment, that the period under discussion might have shown more favorable results.

The report states that the Commission's investigation "has proceeded far enough to indicate a need of more effective measures than thus far have been taken to secure the safety of railroad travel." Unquestionably, the railroads are in hearty accord with all measures which will help to bring about such a result, but it is becoming more apparent that one of the effective means for accomplishing these much needed reforms, would be to permit the railroads to earn sufficient to handle these problems without any sense of restriction. When all is said and done, it is largely a matter of dollars and cents, and to force the railroads to drastic economies in order to produce the results required of them by their security holders, is a case of "robbing Peter to pay Paul," and must inevitably react to the disadvantage of the general public.

LATEST ACCIDENT BULLETIN.

According to an accident bulletin issued by the Commission, the number of persons killed in train accidents during April, May and June, 1912, was 148. The injured totaled 3,924. Accidents to employes and others, due to railroad operations, including industrial accidents totaled 19,848. Of this number 2,363 persons were killed.

The total number of casualties on steam roads, for the year ended June 30, 1912, was 180,123. Of this number 10,685 were killed. This shows an increase of 189 killed, and 19,879 in the number injured, compared with the previous year.

For the three months, April to June, inclusive, there were 8,215 derailments, of which 1,857 were due to defects of roadbed, and 3,847 to defects of equipment.

During the fiscal year 318 passengers were killed, or 36 less than the year before; 3,635 employes were killed, or 33 more than in 1911; the 6,632 others killed, trespassers and non-trespassers, were 192 more than the year before. Of these, 5,434, or 82 per cent, were trespassing when overtaken by accident.

Number of employes now reported is 1,729,144, or 81,111 more than reported last year. During the year to June 30 last, one employe was killed for every 476 employed, and one injured to every 12, as compared with one in 458 and one in 13 for the 1911 year.

DEFECTIVE LOCOMOTIVES.

A report of much interest to those in the operating and mechanical branches of the railroads was that issued during December by the Chief Inspector of the Commission, covering locomotive inspection for the fiscal year ending June 30, 1912. This report will be found discussed in greater detail in another section of this issue. It shows in brief that during that period 48,768 locomotives were found defective, 3,377 were ordered out of service for repairs and 698 were ordered to be permanently removed. The report says that only 170 out of approximately 2,200 carriers complied with the provision of the locomotive boiler inspection law which required all carriers, within three months from the effective date of the law, to file with the Chief Inspector their rules and instructions for inspection.

UNIFORM BILL OF LADING.

A further investigation into the subject of bills of lading is to be undertaken by the Commission. A list of questions has been sent to all railroads asking for specific data to be furnished by January 15. In June, 1908, the Commission recommended the adoption of a uniform bill of lading which had been decided on by a committee of shippers and carriers. It is understood that this bill has been generally accepted and used by the roads in Official and Western classification territories, but has not been adopted to any great extent by roads in Southern classification.

Among the questions sent to the roads the Commission asks: "Do conditions on your line or on the line serving you warrant a different form? If so, wherein do such conditions differ from those on the lines of carriers in Western and Official classification territories which have adopted the proposed form?

"What valid reason is there why the Commission should not prescribe the proposed form as a uniform bill of lading for all carriers?

"What general or specific suggestions have you to offer upon any phase of the general question of bills of lading?"

EXPORT BILL OF LADING.

In denying the claim of the Galveston Commercial Association for reparation on account of demurrage charges which complainants have been compelled to pay during the past two years, the Commission has decided that it has no direct authority to require the issuing of a through export bill of lading, since it has no jurisdiction over the water carrier.

It is not unreasonable, the Commission holds, to require of the carrier to ascertain before receiving cotton for transportation to Galveston for export whether it can be cared for at Galveston upon its receipt and the ship agent should be at once provided with a copy of whatever contract of shipment has been signed by the railway agent on his behalf.

The public interest requires the issuance of

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these through bills of lading. The cotton crop of Texas cannot be handled without great inconvenience under any other system, and unless there is some strong objection that method should be maintained, but when the through export bill is issued the shipper cannot, as a practical matter, be made answerable for demurrage charges. This charge should be cast upon this ship agent upon such terms and conditions as will not impose upon him an unreasonable burden.

After January 1, 1913, no justification can exist for not imposing substantially equivalent demurrage charges at New Orleans and at Texas ports, which are imposed at Galveston, and it will be an undue discrimination not to do so.

IMPORT RATE CASE TO BE REOPENED.

The Commission has consented to reopen partially the import rate case, in order that the pleas of the Boston Chamber of Commerce, the Boston and Maine Railroad and the Boston and Albany Railroad to have their port placed on a parity with Baltimore may be heard.

Under the award of last spring,the first class import freight rates to Chicago were fixed at 75 cents per 100 pounds from Boston and New York, 69 cents from Philadelphia and 67 cents from Baltimore.

The Boston interests now demand as low a rate as Baltimore. Pending the new hearing, Boston's rate has temporarily been restored, by agreement, to 70 cents, the same as existed four years ago before the controversy began.

CHAIRMAN PROUTY ON HEAVY TRAIN LOADS.

At a hearing in Boston during the week of December 23d, on the petition of the Boston Chamber of Commerce, for a lower through rate from that city to Colorado and Utah points, Chairman Prouty took occasion to comment on the "tonnage train" idea which he stated was being overdone by the railroads throughout the country and particularly so in the New England section. He seemed disinclined to take up a thorough study of the causes for train delays in detail, as requested by Louis D. Brandeis, counsel for the Boston Fruit and Produce Exchange, but said that such a study will have to be made later in order to improve the service in general. Mr. Prouty expressed the opinion that freight could be handled more expeditiously in New England if lighter trains and lighter cars were operated, instead of waiting until a heavy "tonnage train" can be made up and run through, as is done in many instances throughout the United States. He called for statistics from the New England lines regarding their late trains, for the purpose of making comparisons with the train service of roads elsewhere, and informed the railroad men that it was quite a different matter to ask them how many trains were late instead of why the trains were behind time.

RULING ON LONG AND SHORT HAUL SECTION.

A new general order has been issued by the Commission under the long and short haul section of the interstate commerce act. In this instance all railroads are instructed that as to rates and fares which are covered by applications for relief from the provisions of the long and short haul section that were filed with the Commission before February 17, 1911, they may file changes in rates, until such applications are passed on by the Commission, under the following conditions, although the discrimination against intermediate points is thereby increased:

'A longer line or route may meet the rates in effect between the same points or groups via a shorter line or route when the present rates via either line do not conform to the fourth section, but are protected by applications as above described.

"A newly constructed line of greater length, publishing rates from or to junction points to meet the rates of more direct lines as provided in the preceding paragraph, may establish from and to its local stations rates in harmony with those established from or to junction points.

"Carriers whose rates between certain points do not conform to the fourth section, but are protected by applications as hereinbefore described, which rates have been made lower than rates at intermediate points to meet the competition of water or rail-and-water carriers between the same points may make such further reductions in rates as may be required to continue to effectively meet the competition of the rail and water or all water lines.

"Where rates are in effect from and to a point that are lower than rates effective at intermediate points, and such rates are covered by applications filed on or before February 17, 1911, carriers may extend the application of such rates to, or establish rates made with relation thereto at points on the same line adjacent or in close proximity thereto, provided that no higher rates are maintained from and to points intermediate to the former point and the new point to which the application of the same or relative rates has been extended.

"Where there is a rate on a commodity from or to one or more points in an established group of points from and to which rates are ordinarily the same, but the rate on the said commodity does not apply at all points in the said group, such rate may be made applicable to or from such other points.

"Where there is a definite and fixed relation between the rates from and to adjacent or contiguous groups or points, and the rates to or from one of said groups are changed, corresponding changes may be made in the rates of the other groups to preserve such relation.

"In cases where no through rates are in effect via the various routes or gateways between two points, and the combination of lawfully published and filed rates via one gateway makes less than the combination via the other gateways, a through rate may be established on the basis of the combination via the gateway over which the lowest combination can be made, and made applicable via all gateways.

"The Commission does not hereby approve any rates that may be filed under this authority, all such rates being subject to complaint, investigation and correction if in conflict with the other provisions of the act."

HARD COAL RATES UNDER INVESTIGATION.

The Commission has begun an investigation of the rates practiced and regulations governing the

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transportation of anthracite coal, and has called upon all anthracite coal carrying railroads and their affiliated coal companies to furnish the Commission by March 1st detailed information as to their coal operations.

All the carriers are required to report the names of the coal companies owned or controlled by them and to submit an accurate statement of their mining and sales operations.

Specifically, the Delaware and Hudson Company and the Delaware, Lackawanna and Western are required to report as to their mining and sales operations, as these roads own and operate anthracite mines.

TRANSIT PRIVILEGE INVESTIGATION.

The Commission has begun a general investigation into the transit privileges, and will hear all parties interested or affected by such privileges upon any commodity. There are filed with the Commission many protests as to the manner and methods employed by the railroads carrying out the order of the Commission dealing with the regulation of transit privileges on grain, including the increase in charges that are exacted upon the movement of milled products of grain over what was formerly charged for a like movement of similar tonnage. These matters will be placed before the carriers at this hearing for such information or explanation as they may give.

There are also lumber interests that desire a further hearing on the question of transit. Moreover, cotton merchants have requested the Commission to hear their protests as to the operation of transit privileges under the tariffs of the carriers. The Commission will upon this occasion investigate all these matters.

INVESTIGATION OF MILEAGE BOOKS

An investigation into the mileage book regulations of practically all railroads east of the Mississippi and south of the Ohio and Potomac rivers has been ordered by the Commission. Complaint was made by the South Carolina Railroad Commission that existing regulations were discriminatory as between interstate and intra-state traffic. The railroads interested may file with the Commission on or before December 20, statements of their position with respect to the investigation.

REFUND OF OVER-CHARGE LAWFUL.

In a letter written by Commissioner Clark to officials of the Denver and Rio Grande, an opinion is expressed that a railroad is privileged to refund amounts which it collects in excess of lawful ticket or excess baggage rates on file with the Commission.

This opinion, Commissioner Clark points out, must not be construed as meaning that the Commission will issue a rule authorizing such adjustments. In each instance, he says, the matter should be referred to the Commission for final adjudication.

EXPRESS COMPANIES ORDERED TO FILE COMPLETE STATEMENTS.

The Commission has issued an order requiring the express companies doing an interstate business to file with the Commission by February, 1913, statements showing a comparison of the effect of existing express rates and those suggested by the Commission. The comparison will be made the basis of reduced express rates to be ordered by the Commission. After considering the statement the Commission will issue a final order prescribing rates to be charged by all interstate express companies. The probability is that order will become effective early next spring.

A prominent official of one of the leading express companies in discussing this order of the Commission expressed confidence that the companies would be able to show clearly that any general reduction in their rates would inevitably result in disaster for them, and that for this reason no drastic action might be expected on the part of the Commission.

Express men base their confidence in the outcome on the public service which the companies perform and which was admitted by the Commission in its report. Even with the institution of the parcels post these companies will still carry about 80 per cent of the package freight of the United States. Approximately 90 per cent of their business, it is stated, is "merchant to merchant" business. Quick delivery is nearly always an essential feature, and it is claimed that such service as is performed by the express companies could not be given as satisfactorily by any other class of carrier.

As proof of the reasonableness of the rates now prevailing for express carriage, the fact that the companies show a net profit of only about six per cent on their actual turnover is pointed to.

RULING ON WIRELESS MESSAGES.

The Commission has ruled that under the act making telegraph and telephone companies common carriers, it has jurisdiction over wireless messages from a commercial station in the United States to a ship at sea, whether a United States or a foreign ship, but that it has no jurisdictions over messages between two American ships at sea.

The effect of the ruling is that the Commission may determine, in the event of complaint, whether charges are reasonable.

ENDORSE COMMERCE COURT.

Efforts will be made before the Senate Committee on Appropriations to secure needed appropriations to continue the Commerce Court in existence. The committee has agreed to hold hearings on the subject and members of the Commission will appear in behalf of the court.

RATE SUSPENSIONS.

The following rate suspensions were made public during December:

Distance Tariff.

The Commission has suspended from December 14 until April 12 Chicago and North-Western Railway tariff which provides for elimination of continuous distance tariff rates to and from points on the narrow gauge line of the Chicago and North-Western Railway in South Dakota. This elimination would result in application to points on the narrow gauge line combination of intermediate rates which exceed the present rates by various amounts.

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Meats and Packing House Products.

The Commission has further suspended from December 13 until June 13 certain Santa Fe tariffs which advance rates on fresh meats and packing house products from Oklahoma City and other points in New Mexico. These schedules were originally suspended from August 15 until December 13.

Furniture.

The Commission has suspended from December 15 until March 31, a tariff of the Norfolk and Western Railway, which proposes to advance rates for the transportation of chairs from Madison, N. C., and other points to Boston, New York Philadelphia and Baltimore. The present rates on chairs in less than carloads from Madison to New York and Boston are 49 and 53 cents per 100 pounds, respectively; the proposed rates 55 cents to each point, making an advance of two cents to Boston and six cents to New York.

The Commission has suspended, until March 31, Southern Railway tariff which proposed advance in rates on furniture from points in the Carolinas and Virginia, to Boston, New York, Philadelphia, Baltimore, and other points.

Oil Cake, Etc.

In a supplemental order, the Commission has suspended from January 1, until March 31, Hosmers Tariff, which eliminates via the Missouri Pacific Railway and its connections, an existing export rate of 16½ cents per 100 pounds on oil cake, oil meal, screenings and flax seed, in carloads from St. Paul and Minneapolis to certain Gulf ports, including Galveston, leaving in effect only the class rate of 35 cents per 100 pounds.

Cottonseed.

The Commission has suspended from December 7 until April 5 a tariff of the Missouri Pacific Railway, which provides for cancellation of existing joint rates on cottonseed from points in Oklahoma on the Missouri, Oklahoma and Gulf Railroad to Little Rock and other points in Arkansas. The cancellation of present joint rates and substitution of combination rates will result in advances ranging from three cents to 13 cents per 100 pounds.

The Commission has suspended from December 24 to June 24 proposed advances in rates on shipments of cotton linters from points in Texas to New Orleans.

Grain.

Proposed advances in rates on grain for export shipped over the Illinois Central, Kansas City Southern and Missouri Pacific railroads from Kansas City, Mo.; Omaha, Neb., and other points in Central Freight Association freight territory to New Orleans, Galveston and other Gulf ports, have been suspended by the Commission until March 31, next. The advance amounts to three cents per hundred pounds.

Missouri Pacific, Illinois Central and Kansas City Southern had intended to discontinue reduced export grain rates to Gulf ports and had filed notices to that effect at Washington which would have automatically restored previous tariffs until the next season of navigation opened, but an order has been issued by the Commission to extend their reduced rates until March 31.

Advances of two cents per 100 pounds on wheat and coarse grain from Kansas City, and other Missouri River points to Southern Illinois, proposed by the Chicago and Alton, Burlington, Rock Island, Missouri Pacific and Wabash railroads, have been suspended by the Commission until April 14. An inquiry has been ordered.

The Commission has issued an order suspending from December 26 to April 25 next proposed advances in rates on shipments of grain from points in Southern Illinois to Texas points. The railroads propose an advance of about seven cents per 100 pounds.

Pig Iron.

The Commission has issued an order suspending from December 30 until June 30, proposed advances in the transportation rates of pig iron from Buena Vista and other Virginia points to Philadelphia and certain other Eastern destinations.

Coal.

Freight tariffs of the Grand Trunk and other railroads, containing rules and regulations governing division reconsignments and other privileges on coal, coke, iron ore and other commodities handled at Detroit, have been further suspended by the Commission from December 13 to June 13.

The Commission has suspended from December 15 until April 14 freight tariffs which propose to advance the charges for switching coal and coke at Chicago from connecting carriers to industries and coal yards on the tracks of the Chicago, Milwaukee and St. Paul Railroad within the Chicago switching districts by amounts ranging from six to twelve cents per ton. These tariffs had been filed by the Baltimore and Ohio; Chesapeake and Ohio; Chicago and Alton; Chicago and Eastern Illinois; St. Louis and San Francisco; Chicago, Burlington and Quincy; Chicago, Indiana and Southern; Chicago, Terre Haute and Southern; Cleveland, Cincinnati, Chicago and St. Louis; Erie; Grand Trunk; Illinois Central; Lake Shore and Michigan Southern; Michigan Central; New York, Chicago and St. Louis; Pennsylvania; Pittsburg, Cincinnati, Chicago and St. Louis, and the Wabash railroads.

Railway Equipment.

The Commission has suspended from December 6 until April 4, a Countiss Transcontinental Freight Bureau tariff on "railway equipment, new or second-hand, when handled as freight," which advances from $00 to $163.50 per car the rate for the transportation of empty freight cars to Cali-

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fornia terminals from group F, which includes certain points in Illinois, Indiana, Michigan, Iowa, Kansas, Minnesota, Missouri, Nebraska and Wisconsin.

Lumber.

Advances in freight rates on lumber from Lockhart and Samson, Ala., and other points to Washington, D. C., Baltimore, Md., and other destinations have been further suspended by the Commission from December 17 until June 17. These tariffs, filed by E. H. Hinton, agent, were first suspended from August 19.

Advances in rates on hardwood lumber and articles taking the same rates from points in Arkansas, Louisiana and other States to Memphis, St. Louis and other points of destination have been further suspended by the Commission from December 15 until March 15. The advances, which amount to about two cents per 100 pounds, were filed by M. P. Washburn, agent, and the Missouri Pacific and other railroads.

An order has been entered by the Commission suspending from December 10 until April 9 tariffs filed by R. H. Countiss, agent, which cancels joint rates on lumber from points on the Washington Western Railway to places on or reached by the Great Northern, the Northern Pacific and the Chicago, Burlington and Quincy railroads. The Washington Western is a line about 11 miles long in the western part of the State of Washington. Lumber shipped from points on that line to Eastern destinations now takes the so-called coast rates and the cancellation of joint charges with this line would cause shippers there to pay four cents and four and one-half cents per 100 pounds in excess of the coast rates.

DECISIONS RENDERED.

The following decisions were made public during December:

Grain.

Advances in rates on grain from Kansas City, Omaha, Council Bluffs, Iowa, and other points to New Orleans, and other Gulf points, for export, will be permitted to take effect December 23, according to a notice issued by the Commission.

These rates had been filed by the Illinois Central; Kansas City Southern; Texarkana and Fort Smith; Missouri Pacific; St. Louis, Iron Mountain and Southern and connecting railroads, but were suspended by the Commission. The Commission announces that for good reason this suspension order will be vacated.

A decision has been issued by the Commission in the Detroit reconsigning case, wherein it is held that the proposed charge of $2 for reconsigning carload shipments received at Detroit to points within the switching district is unreasonable unless the consignees are advised of the arrival of the cars at Toledo on the tracks of the carriers making delivery at Detroit, so that the consignees may have an opportunity to give their reconsigning orders before the cars reach the latter point.

About two years ago the carriers did not charge for reconsigning, but the business at Detroit grew so that in 1910 a tariff was filed fixing a reconsigning charge of $3, which was reduced by order of the Commission to $2. This charge was assessed only on shipments consigned to points beyond Detroit. The case in hand proposes a similar charge on reconsignment to points within Detroit switching limits. Coal comprises the largest traffic which is reconsigned at that point.

Announcing a decision in the case of P. C. Kamm and Company, against the Pennsylvania and other railroads, the Commission holds that the Milwaukee company, which owns a grain elevator in Milwaukee, receives double pay for the elevation of grain in that city, which is unjust, and that the tariffs of the railroads should be so modified as to provide that when that company collects this transfer charge from the Eastern lines, no transfer charge shall be made against the grain dealer. It was shown in this case that the Milwaukee company receives one-fourth cent per bushel for elevating grain if ordered out in ten days, and that the lines east of Milwaukee pay a charge to the owner or operator of the elevator in the same sum for the transfer service.

A readjustment of the rates on grain and flaxseed and of the differentials on those commodities among the cities of Minneapolis, Milwaukee, Duluth, Superior and other highly competitive points in the Northwest has been ordered by the Commission. It is designed to meet protests by various cities that the original orders of the Commission were not complied with, through lack of detailed directions.

Class Rates.

A decision has been handed down by the Commission vacating the suspension order issued against the advance in class rates by railroads operating between certain points in Iowa and Minneapolis and other places. It was found that the new rates would merely restore a traffic condition existing some time ago, against which there was no objection.

Class rates from Baker City, Oregon, to points on the Oregon Short Line between Olds Ferry, Idaho, and Vale, Ore., have been found to be unreasonable by the Commission upon complaint of the Baker Commercial Club against the Oregon-Washington Railroad and Navigation Company and others.

Class rates on motorcycles in less than carloads over the Atchison, Topeka and Santa Fe Railroad from points in Massachusetts and Ohio to Kansas City, Mo., and Ottawa, Kan., have been declared unreasonable by the Commission.

Tubs.

Announcing a decision in the case of the Cahill Iron Works, of Chattanooga, Tenn., against the Southern and other railroads, the Commission holds that the rate of $2.20 per 100 pounds on cast-iron, porcelain-lined, combination sink-and-laundry tubs from Chattanooga to San Francisco, when shipped in mixed carloads with sinks, is unreasonable. The rate of $1.40 was ordered to be put in effect by January 15.

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Fruit.

In the case of M. W. Thompson against the Atchison and other railroads the Commission holds that the charges on apples from Espanola, N. M., to various points in Arizona and California based upon a combination of local rates were unreasonable in so far as they exceeded a joint rate of 80 cents.

The Commission has rendered a decision which holds unreasonable existing rates on fruits and vegetables from Louisiana and Texas points; on apples and other deciduous fruits from Oregon, Utah and Idaho; and on citrus and deciduous fruits, canned goods and vegetables from California points to Crawford, Neb., and other Middle Western destinations. The Commission ordered a general reduction of the rates, averaging approximately 20 per cent; the reduced rates to remain in effect for at least two years from February 1, next.

Oil.

The Commission has ordered the withdrawal of tariffs proposing advances in rates for the shipment of petroleum and its products from refineries in the so-called Buffalo group to points in Southern Ohio and Indiana. The Terminal Railroad Association of St. Louis, St. Louis Merchants' Bridge Terminal Railway, Wiggins Ferry Company and the Interstate Transfer Company were among the defendants in this proceeding. All points of destination involved are not confined to Ohio and Indiana, but are in what is known as Central Freight Association territory.

The Commission says: "The railroads' only justification for the proposed increases was the history of the class rate adjustment and the contention that as oil had theretofore taken 90 per cent of the fifth class rate it should continue to take the same percentage of the increased fifth class rate. No attempt was made to determine the reasonableness of the oil rate either before or after the proposed advance, and, while there might have been reasons justifying the increases in the class rates, it is not shown that any of these considerations necessarily relate to the oil rates.

"We are of the opinion that the proposed rates would work an unjust discrimination against the points at which the increases are contemplated in favor of points at which no increases are sought to be made."

Furniture.

In a formal order the Commission has set aside two former orders suspending proposed advances in rates on shipments of furniture from St. Louis to Texas common points. The advance from St. Louis to Texas common points is six cents per 100 pounds, or from 79 to 86 cents, and will become effective December 24. The new tariff carries corresponding increases to other Texas points.

The territory of origin involved in the order lies west of Atlantic seaboard territory and east of Colorado common points. Furniture manufacturers in all parts of the territory involved protested against the advance. They agreed that no question of relative rates is involved, that if the advance from St. Louis is proper all the other advances necessarily and properly follow. For this reason the Commission passed only on the question of the advance from St. Louis, which is upheld.

Wool.

Wool shipments are the subject of a supplementary opinion by the Commission dealing with unreasonable rates and practices of transcontinental lines in its transportation.

A minimum carload weight of 24,000 pounds prescribed by the Commission imposes no unreasonable burden on the shipper but actually increases the car efficiency and economy of transportation, it is held. The contention of shippers that baled and sacked wool take the same rate is not sustained. Rates on scoured wool from New Mexico to Eastern destinations are declared to be excessive and should be reduced, and wool in Western territory should take the fourth class.

This decision disposes of cases instituted by the Railroad Commission of Oregon and the National Wool Growers' Association, which have been pending for several years.

Cotton.

A decision has been issued by the Commission on the complaint of the Galveston Commercial Association and others involving the export rates on cotton. The decision points out that the Commission has no direct authority to require the issuing of a through export bill of lading, since it had no jurisdiction over the water carrier, but this must not be understood as meaning that the Commission may not act upon the rail carrier which is subject to its jurisdiction in a proper case where the ocean carrier stands ready to enter into these through arrangements upon reasonable terms. The Commission ordered the Atchison, Topeka and Santa Fe and other roads to apply the same treatment to cotton for export at Galveston as to New Orleans and the Texas ports.

Iron.

The Commission has decided in the case of the Wharton Steel Company and B. Nicoll and Company versus the Delaware, Lackawanna and Western Railroad that rates on iron ore from points in northern New Jersey and southeastern New York to furnaces in the Lehigh and Schuylkill Valley districts of eastern Pennsylvania and from Keenes, N. Y., to Wharton, Pa., are reasonable. It is suggested, however, that certain readjustments should be made in tariffs to remove inconsistencies.

Coal.

Chesapeake and Ohio and other carriers in Central Freight Association territory have been directed by the Commission to make reductions in rates on channel coal from Redwine, Ky., to northwestern Ohio, Indiana, Wisconsin, Illinois, Missouri and Michigan, beginning February 1. The present rates from Redwine are anywhere from 40 cents to $1.15 per ton more than from the Kanawha district to Kentucky, and the Commission says they must in no case exceed 40 cents excess.

In deciding the matter of alleged irregularities in mine ratings among the coal mines served by

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the Illinois Central Railroad Company, the Commission holds that the ratings of the mines shall be based upon their several hourly capacities for production; that the mines that have outlet by river shall be treated as junction point mines; that upon days for which the junction point mine orders no cars from another carrier, it shall have its full rating on the Illinois Central; that upon a day for which it orders cars from one other carrier, its rating on the Illinois Central for that day shall be 75 per cent of its full rating; and that upon a day for which it orders cars from two other carriers, its rating on the Illinois Central for that day shall be 50 per cent of its full rating.

LUMBER.

The Commission has dismissed the complaint of the Appalachia Lumber Company and others against the Louisville and Nashville and other railroads wherein it was alleged that the lumber rates from points on the Cumberland Valley division of the Louisville and Nashville Railroad to certain points in Ohio, Michigan and Pennsylvania are unreasonable. The Commission holds, however, that "the claim that defendants make lower lumber rates from points on the Cumberland Valley division to more distant points than to intermediate points north of the Ohio River is not passed on, pending fourth section applications of interested carriers for relief from the operation of the long-and-short haul clause.

"No reparation can be awarded up to the time when the Commission passes upon these fourth-section applications, unless, possibly, a case is made out under the third section, which might carry with it an award of damages, or unless under the first section the rate to the intermediate points has been found unreasonable."

The contention of the Multonomah Lumber and Box Company and others of Portland and Astoria, Ore., that rates on box lumber from these points to places in California as compared with the rates given Glendale and Cottage Grove, Ore., are discriminatory and unjust, has been sustained by the Commission. The defendants were the Southern Pacific Railroad Company and the Spokane, Portland and Seattle Railway Company.

PERSONALS.

EXECUTIVE

F. B. Bronder has been appointed receiver of the Chicago, Fox Lake & Lake Geneva R. R. and of the Wisconsin Construction Company.

A. C. Clark has been elected vice-president and general manager of the Southwestern Railway, with offices at Henrietta, Texas.

Wilbur Coman has been appointed vice-president and manager of the Northwestern Electric Company.

Newman Erb has been elected president of the Ann Arbor, succeeding Joseph Ramsey, Jr., resigned.

J. M. Fitzgerald has been elected president of the Western Maryland Railway, with headquarters at Baltimore, Md.

R. B. Fowler has been elected president and general manager of the Tremont & Gulf, with headquarters at Winnfield, La., to succeed W. H. Seaman, resigned.

G. B. Hengen has been elected president of the Oregon, Pacific and Eastern Railway, with office at Chicago, **A. B. Wood,** first vice-president, and **Jesse Darling,** secretary with headquarters at Cottage Grove, Oregon.

W. S. McChesney, Jr., has been elected president of the Wiggins' Ferry Company, with office at St. Louis, Mo.

A. C. Parks has been elected vice-president and general manager of the Southwestern Railway at Henrietta, Texas.

Samuel Rea has been elected president of the Pennsylvania Railroad to succeed Mr. James McCrea, who retires from active service.

D. S. Roberts was elected a director of the United States Express Company, to fill the vacancy caused by the death of A. G. Hackstaff.

W. E. Stavers has been appointed president of the Alaska Northern Railway.

Finley J. Shepard has been appointed assistant to the president of the Missouri Pacific Iron Mountain System.

John G. Walber has been appointed assistant to third vice-president of the Baltimore and Ohio, Balimore and Ohio Southwestern; Cincinnati, Hamilton and Dayton and Staten Island lines.

FINANCIAL.

F. J. Eaton has been appointed acting auditor of the Rutland R. R. and allied companies, with offices at Rutland, Vt.

H. E. Huntington, of New York, has been elected a director and member of the Executive Committee, of the Hocking Valley.

R. M. Kleinhans has been appointed [illegible] countant of the Missouri, [illegible] headquarters at Denison, Te[illegible]

N. D. Maher has [illegible] in charge of oper[illegible] ern Railway, wi[illegible]

Edwin G [illegible] of the M[illegible]

J. [illegible] ag[illegible]

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Wm. G. MacDowell has been appointed vice-president in charge of finances and accounts, of the Norfolk & Western Railway, with office at Philadelphia.

Henry McMaster presented his resignation as receiver of the Wabash-Pittsburgh Railroad Company and the West Side Belt R. R.

S. Davies Warfield has been elected chairman of the Board of Directors of the Executive Committee and of the Finance Committee of the Seaboard Air Line Railway.

LEGAL.

R. F. Britton, assistant general attorney of the St. Louis Railway, has resigned to enter the private practice law.

Stanford H. E. Freund has been appointed general attorney of the Great Northern, with headquarters at St. Paul, Minn.

Edward A. Haid has been appointed assistant general attorney of the St. Louis Southwestern, with headquarters at St. Louis, Mo., succeeding Roy F. Britton, resigned.

Duane E. Minard has been appointed an assistant general solicitor of the Erie, with office at New York.

F. W. Sargent has been appointed attorney for Iowa of the Rock Island lines.

TRAFFIC.

S. B. Adams has been appointed traveling passenger agent of the Norfolk & Western, with office at Indianapolis, Ind.

W. B. Bevill has been appointed passenger traffic manager of the Norfolk & Western, with office at Roanoke, Va.

Robert W. Boisseain has been appointed general traffic manager of the United Fruit Company, with headquarters at New York City.

B. L. Birkholz has been appointed general agent of the El Paso & Southwestern System and the Morenci Southern Railway, with headquarters at New York, N. Y.

...as been appointed traffic man-...-Salem Southbound, with

...eral agent, ...ton R. R.

...ling

commissioner of industries for lines west of Detroit and St. Clair rivers, of the Grand Trunk, with office at Detroit.

Thomas E. Conlon has been promoted to traveling freight agent of the Baltimore & Ohio Railroad, with office at Uniontown, Pa.

H. P. Cornick has been appointed assistant general freight agent of the St. Louis and Henderson divisions of the Louisville & Nashville, with headquarters at Evansville, Ind.

Wildred S. R. Cameron has been appointed traveling agent of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at Vancouver, B. C.

L. E. Chalenor has recently been appointed freight traffic manager of the Seaboard Air Line, with office at Norfolk, Va.

K. W. Custis has been appointed traveling freight agent of the Toledo, St. Louis & Western Railroad, with office at Pittsburgh, Pa.

G. E. Chase, commercial agent for the Milwaukee in Buffalo, will have his headquarters changed to Kansas City, with the title of Southwestern Passenger Agent.

T. S. Davant has been appointed vice-president in charge of traffic of the Norfolk & Western Railway, with office at Roanoke, Va.

W. H. Eaton has been appointed commercial freight agent of the Baltimore & Ohio, with headquarters at Uniontown, Pa. **Thomas E. Conlon** succeeds Mr. Eaton as traveling freight agent, with office at Uniontown.

J. B. Flyn has been appointed traveling freight agent of the Southern Railway.

D. E. Gilbert has been appointed commercial agent of the Wabash, with office at Cleveland, Ohio.

I. M. Griffin has been appointed general freight agent of the Texas and Pacific with headquarters at Dallas.

William Humphrey, commercial agent of the Southern Railroad at Dallas, Texas, has been appointed to the same position with the Southern Railroad, with headquarters at Chattanooga, Tenn.

W. W. Hamilton has been transferred to the Missouri division of the Santa Fe, with headquarters at Shopton, Iowa.

B. W. Herrman has been promoted to assistant general freight agent at Columbus, Ohio, for the Norfolk & Western.

John T. Hendricks has been appointed general traffic manager of the Missouri Pacific Railroad.

J. M. Johnson has been appointed general director of traffic on all Gould lines west of the ...issippi River, with headquarters in St. Louis,

...enney has been appointed traveling ...ent of the Grand Trunk, with office ... Pa.

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H. E. Jones has been appointed general agent of the passenger department of the Mobile & Ohio R. R., with office in Mobile, Ala.

W. H. Knox has been appointed commercial agent of the Nashville, Chattanooga & St. Louis, with office at Nashville, succeeding W. L. Nichol, promoted.

G. C. Knickerbocker has been appointed division freight and passenger agent of the Wabash, with headquarters at Danville, Ill. **R. A. Brown** succeeds Mr. Knickerbocker at Buffalo, N. Y.

T. J. Keyes has been appointed freight agent of the New York Central lines, with office at Niagara Falls, N. Y.

Earl D. Lamiman has been appointed traveling freight and passenger agent of the Missouri Pacific and the St. Louis Iron Mountain & Southern, with headquarters at Tacoma, Wash.

Frank J. Lambert has been appointed traveling passenger agent of the Lehigh Valley, with office at Philadelphia.

M. W. Levernier has been appointed traveling agent of the Chicago & North Western, with headquarters at Chicago.

P. L. Markey has been appointed division freight and passenger agent at the Chicago, Milwaukee & St. Paul, with office at Ottumwa, Ia., succeeding W. C. Parker, who has been transferred to Cedar Rapids, Ia.

E. G. Mustain has been appointed division freight and passenger agent of the El Paso & Southwestern, with office at Tuscon, Ariz.

C. H. Mitchell has been appointed commercial agent at Buffalo by the Chicago, Milwaukee & St. Paul Railway.

J. H. Myler has been appointed commercial agent of the Cleveland, Cincinnati, Chicago & St. Louis Railway, with headquarters at Buffalo, N. Y.

P. F. Murphy has been appointed contracting freight agent of the Toledo, St. Louis & Western with office at St. Louis, Mo.

E. F. McDaneld has been appointed freight and passenger agent of the Chicago & Alton, with office at Salt Lake City, Utah.

Al. J. Wyant has been appointed traveling freight agent, with headquarters at Pittsburgh, Pa., in place of J. H. Walkmeyer, promoted.

W. L. Nichol has been appointed general freight agent of the Nashville, Chattanooga & St. Louis, with headquarters at Nashville, Tenn.

J. B. Payne has been appointed assistant general freight agent of the Louisiana lines, headquarters at New Orleans.

H. L. Please has been appointed passenger agent D. & R. Co., Chicago.

F. M. Miller has been appointed commercial agent of the Clover Leaf at Los Angeles, Cal.

Roy E. Pinniger has been appointed freight solicitor of the Star Union Line, with office at Milwaukee, Wis.

H. W. Prickett has been appointed general agent of the traffic department of the Chicago & Alton, with offices at Salt Lake City, Utah.

G. R. Pettit has been promoted to division passenger agent of the Southern Railway Company, with office at Jacksonville, Fla.

C. L. Parker has been appointed commercial agent of the Seaboard Air Line, with office at Richmond, Va., succeeding G. H. Parater, resigned to accept service elsewhere.

F. C. Regan has been appointed general agent traffic department of the Chicago & Alton Railroad, with office in Los Angeles, Cal.

H. L. Redfield has been appointed first assistant general freight agent and chief of traffic bureau, headquarters at Dallas.

A. J. Russell has been appointed assistant general freight agent of the Pere Marquette Line steamers, in charge of lumber and salt traffic, with headquarters at Ludington, Mich.

G. S. Rains has been appointed general freight agent of the Seaboard Air Line, with headquarters at Norfolk, Va.

Conrad E. Spens has been appointed assistant freight traffic manager of the Burling system, with headquarters at Chicago. **H. H. Holcomb** succeeds Mr. Spens.

E. D. Stratton has been appointed land and industrial agent of the Cincinnati, New Orleans & Texas Pacific and the Alabama Great Southern, with headquarters at Chattanooga, Tenn.

A. F. Sullivan has been appointed traveling freight agent of the Chicago & Alton R. R., with office in Minneapolis.

W. C. Saunders has been appointed general passenger agent of the Norfolk & Western.

R. E. Scott has been appointed passenger agent of the Norfolk & Western, at Portsmouth, Va.

C. M. Teschemacher has been appointed general agent of the Chicago & Alton, with office at Chicago.

G. L. Townsley has been appointed commercial agent of the Toledo, St. Louis & Western Railroad, with office at San Francisco, Cal.

Howard C. Tucker has been appointed traveling coal freight agent of the Baltimore & Ohio, with headquarters at Uniontown, Pa.

DeLos Thomas has been appointed general freight agent of the Norfolk & Western, with office at Roanoke, Va.

G. C. Van Zandt has been appointed general agent of the Norfolk & Western at Cincinnati, Ohio.

J. H. Walkmeyer has been appointed commercial agent of the Chicago & Alton Railroad, with office in New York.

W. G. Wagner has been appointed assistant general freight agent of the Illinois & Iowa, with office at Burlington, Ia.

OPERATION.

C. O. Bradshaw has been appointed trainmaster of the Great Northern, with office at Glasgow, Mont.

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Frank M. Barker has been appointed assistant superintendent of the Lehigh Valley, with headquarters at Wilkes Barre, Pa.

R. N. Begien has been appointed assistant general superintendent of the Baltimore & Ohio, in charge of the territory between Philadelphia, Pa., and Parkersburg, W. Va.

W. S. Becker has been appointed assistant to the vice-president in charge of operation of the Norfolk & Western, with office at Bluefield, W. Va.

George W. Berry has been appointed general superintendent of the Illinois Central and Yazoo & Mississippi Valley, with headquarters at Memphis, Tenn.

H. Clewer has been appointed superintendent of locomotive operation of the Rock Island Lines, with office at Chicago, Ill.

William Cotter, general manager of the Pere Marquette Railroad, has tendered his resignation to the receivers.

A. S. Cheever has been appointed assistant to the general manager of the Boston & Maine R. R., with office at Boston, Mass.

Richard Colclough has been appointed assistant to the general superintendent of the Intercolonial Railway and the Prince Edward Island Railway, with headquarters at Moncton, N. B.

T. H. Conroy has been appointed superintendent of the South Park Division of the Colorado & Southern, with headquarters at Denver, Colo.

R. P. Dalton has been appointed superintendent of the Chicago Division of the Pere Marquette, with headquarters at Grand Rapids, Mich.

Edward Horace DeGroot has been appointed superintendent of transportation of the Chicago & Eastern Illinois, with headquarters at Chicago.

J. Dwyer has been appointed superintendent of the Oregon Electric and the Spokane, Portland & Seattle, with headquarters at Portland, Ore.

George H. Emerson has been appointed general manager of the Great Northern.

Thomas J. Foley has been appointed general manager of the Illinois Central and Yazoo & Mississippi Valley, with headquarters at Chicago.

J. A. Frogner has been appointed trainmaster of the Sioux City Division of the Great Northern, with office at Sioux City, Ia.

J. D. Gallary has been appointed superintendent of the Providence Division of the New York New Haven & Hartford, with office at Providence, R. I.

J. L. Hayes has been appointed superintendent of the Port Huron Division of the Pere Marquette, with headquarters at Saginaw, Mich.

J. D. Hester has been appointed superintendent of the Shenandoah Division of the Norfolk & Western, with headquarters at Roanoke, Va.

J. B. Haefer has been appointed assistant general manager of the International & Great Northern R. R., wth headquarters at Houston, Texas.

William Hall has been appointed assistant trainmaster of the Grand Trunk Railway, with office at Hamilton, Ont.

Frank E. Hatch has been appointed trainmaster of the Centralia, Ill., terminals of the Illinois Central R. R., with office at Centralia.

W. H. Johnson has been appointed superintendent of the Winston-Salem Southbound, with office at Winston-Salem.

J. M. Kinkead has been appointed supervisor of the Pennsylvania R. R., with office at Huntington, Pa.

Homer W. Loomis has been appointed trainmaster of the Lansing Division of the Lake Shore & Michigan Southern, with office at Hillsdale, succeeding W. D. Stearns, whose headquarters were at Jackson. Mich.

C. A. Manthe has been appointed trainmaster of the Marcus Division of the Great Northern, with office at Marcus, Wash.

W. D. Mason has been appointed trainmaster of the Fergus Falls Division of the Great Northern, with headquarters at Milrose, Minn.

Sullivan S. Morris has been appointed chairman, General Safety Committee of the Illinois Central Railroad, with headquarters at Chicago.

C. F. Myers has been appointed superintendent of car service and telegraph of the Mexico Northwestern, with office at Ciudod Juarez, Chih., Mexico.

W. R. McCollom has been appointed terminal trainmaster of the Chicago & Alton Railroad Company.

A. M. McGill has been appointed assistant superintendent of motive power of the Lehigh Valley, with office at South Bethlehem, Pa. **J. C. Seeger** succeeds Mr. McGill.

T. M. McLaughlin has been appointed assistant superintendent of the Portland Division of the Maine Central R. R., with office at Waterville, Me.

A. C. Needles has been appointed general manager of the Norfolk & Western, with office at Roanoke, Va.

John M. O'Day has been appointed superintendent of transportation of the Illinois Central Railroad, with headquarters at Chicago.

J. E. O'Hearne has been appointed superintendent of rolling stock of the Chicago & Alton, with headquarters at Bloomington, Ill.

T. W. Parson has been appointed superintendent of the Florida Division of the Seaboard Air Line at Americus, Ga.,, with office at Tampa, Fla.

C. H. Priest has been appointed assistant superintendent of the Portland Terminal Co., with office at Portland, Me.

V. A. Riton has been appointed general superintendent of the eastern general division of the Norfolk & Western, with headquarters at Roanoke, Va.

Joseph D. Rahaley has been appointed trainmaster of the New York, Susquehanna & Western R. R. Division and main line between Beaver Lake and Stroudsburg, inclusive.

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James Shea has been appointed division roadmaster of the St. Louis, San Francisco & Texas and the Fort Worth & Rio Grange, with headquarters at Fort Worth, Texas.

J. F. Sheahan has been appointed superintendent of motive power of the Atlanta, Birmingham & Atlantic, with office at Fitzgerald, Ga.

H. Shearer has been appointed assistant general manager of the Michigan Central R. R., with offices at Detroit.

W. F. Schaff has been appointed superintendent of the Detroit Division of the Lake Shore & Michigan Southern Ry., with office at Cleveland, Ohio.

John Waldron has been appointed chief despatcher of the New York, Susquehanna & Western R. R.

Clayton N. Woodward has been appointed general superintendent of the New York, New Haven & Hartford, with office at New Haven, Conn.

J. J. Waters has been appointed superintendent of motive power of the Pere Marquette, with headquarters at Grand Rapids, Mich., to succeed W. L. Kellogg, resigned.

Harry C. Weller has been appointed superintendent of the Pocahontas Division of the Norfolk & Western, with office at Bluefield, W. Va.

ENGINEERING AND MECHANICAL.

Thomas Bernard has been appointed assistant to chief engineer in the office of chief engineer maintenance of way and structures, of the Northern district of the Southern Railway, with headquarters at Greensboro, N. C.

Frederick S. Brown has been appointed mechanical engineer of the Erie Railroad, with headquarters at Meadville, Pa.

R. E. Bell, formerly general foreman of the Gulf, Colorado & Santa Fe, at Galveston, Texas, has been appointed master mechanic of the Galveston Division, with office at Galveston.

W. A. Chamberlain has been appointed master mechanic of the Pere Marquette, with office at Saginaw, Mich., in place of F. C. Pickard, resigned.

T. W. Callahan has been appointed master mechanic of the Mesabe Division of the Great Northern, and **Mr. N. Osgard** has been assigned to the Superior Division as master mechanic. Both have offices at Superior, Wis.

W. T. Dobyns has been appointed Engineer Maintenance of Way of the Northern District of the Southern Railway, with headquarters at Greensboro, N. C.

B. A. Eldridge has been appointed general foreman of the Santa Fe, at Arkansas City, Ark., in place of Mr. E. P. Gray.

S. B. Fisher has been appointed chief engineer of construction of the Missouri, Kansas & Texas, with headquarters at St. Louis, Mo.

F. A. C. Ferguson has been appointed trainmaster of the Vicksburg, Shreveport & Pacific, with office at Shreveport, La., succeeding B. B. Fowler, resigned.

A. L. Filmore has been appointed master mechanic of the Southern District of the Minneapolis, St. Paul & Sault Ste. Marie, with office at Stevens Point, Wis.

E. C. Hanse has been appointed acting master mechanic of the Georgia & Florida, with office at Douglas, Ga.

C. C. Hayman has been appointed road foreman of engines on the Middle Division of the Santa Fe, with headquarters at Newton, Kan.

H. M. Hutton has been appointed master mechanic of the Baltimore & Ohio at Grafton, W. Va. **P. Conill** has been appointed assistant superintendent of shops at Mount Clare, Baltimore, Md., and **J. W. Adams** general foreman at the same place.

H. O. Inglish has been appointed master mechanic of the Texas City Terminal at Texas City, Texas, in place of Mr. F. A. Scott.

W. L. Kellogg has been appointed superintendent of machinery and equipment of the Missouri, Kansas & Texas, with headquarters at Parsons, Kan., succeeding William O'Herin.

George P. Kempf has been appointed engineer of tests of the Chicago, Milwaukee & St. Paul, at Milwaukee, in place of Mr. R. H. Morrison, resigned.

S. H. Lee has been appointed foreman of locomotive repairs of the Chicago, St. Paul, Minneapolis & Omaha, with office at East St. Paul, Minn.

Henry Lewis has been appointed machine-shop foreman of the Santa Fe at Clovis, New Mexico, and **J. D. Costello** has been appointed erecting foreman at the same place.

W. E. Maxfield has been appointed master mechanic of the Texas & Pacific, with office at Big Springs, Tex., in place of Mr. C. E. Boss.

G. C. Millett has been appointed assistant to chief engineer of the Atchison, Topeka & Santa Fe Coast Lines, at Los Angeles, Cal.

A. L. Moler has been appointed master mechanic of the Charlotte Harbor & Northern, with office at Arcadia, Fla.

D. F. McLowe has been appointed master mechanic of the Missouri, Kansas & Pacific, with headquarters at Shreveport, La.

W. J. McLean has been appointed master mechanic of the Duluth, Rainy Lake & Winnipeg, and also master mechanic of the Duluth, Winnipeg & Pacific, with headquarters at the West Duluth, Minn. shops.

E. Norton, formerly road foreman of engines on Western Division of Santa Fe, has been appointed division master mechanic of Dodge City, Kan.

T. H. Nanney has been appointed general foreman of the Buffalo & Susquehanna, with office at Galeton, Pa.

N. J. O'Connor has been appointed master mechanic of the Florence & Cripple Creek, with office at Colorado Springs, Colo.

G. E. Perry has been appointed superintendent of motive power of the Missouri, Oklahoma & Gulf, with headquarters at Muskogee, Okla.

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Ralph Ramsey has been appointed traveling engineer of the Texas & Pacific, with office at Marshall, Texas.

W. L. Rohbock has been appointed chief engineer of the Wheeling & Lake Erie, with headquarters at Cleveland.

Edward M. Reese has been appointed chief train despatcher on the Pennsylvania Lines West of Pittsburgh, Western Division.

F. Slater, formerly master mechanic of the Chicago & Northwestern at Escanaba, Mich., has been transferred to Kankana, Wis. **E. Becker** succeeds Mr. Slater at Escanaba.

J. B. Stewart has been appointed master mechanic of the Texas, Oklahoma & Gulf, with office at Bismarck, Okla., in place of Mr. H. Reed.

W. C. Sealey has been appointed assistant master mechanic of the Middle and Southern Divisions of the Grand Trunk, with office at Toronto, Ont.

G. B. Seimantel has been appointed master mechanic of the St. Louis, Rocky Mountain & Pacific Railway, with office at Cimarron, N. M.

E. Schultz has been appointed master mechanic of the Northern Wisconsin and Lake Shore Divisions of the Chicago & Northwestern, at Green Bay, Wis.

W. M. Vandersluis has been appointed signal engineer of the Illinois Central, succeeding N. E. Baker, resigned.

G. M. Wilson has been appointed general foreman of the Grand Trunk shops at Toronto, Ont., in place of Mr. W. C. Seally, promoted.

J. W. Wampler has been appointed road-master of the Virginia & Southwestern Railway.

PURCHASING.

Clinton D. Baldwin has been appointed purchasing agent of the Bangor & Aroostook R. R., with office at Milo Junction, Me.

F. A. Bushnell has been appointed assistant purchasing agent of the Great Northern, with headquarters at St. Paul, Minn.

A. H. Young has been appointed general storekeeper of the St. Louis and San Francisco Railroad, with headquarters at Springfield, Mo.

MISCELLANEOUS.

Edgar E. Clark has been reappointed as member of the Interstate Commerce Commission by President Taft.

Elisha Lee has been elected chairman of the Railway Managers' Committee.

Ivy L. Lee has returned to the service of the Pennsylvania Railroad. He has been made assistant to President Rea.

J. C. Stuart of the Erie resigned as chairman of the Conference Committee of General Managers of Eastern Railroads.

Dr. F. J. Will announced his retirement from the services of the Northwestern as district surgeon.

OBITUARY.

Thomas W. Galleher, general freight agent of the Baltimore and Ohio Railroad lines east of Pittsburgh, died on the morning of December 18th, at Baltimore, Md. He had been in the employ of the Baltimore and Ohio for 30 years. He was 54 years old.

Mr. Galleher entered the service of the railroad in 1872 as a telegraph operator. Two years later he was transferred to Butler, Ohio, and the next year went to the division freight agent's office in Columbus, Ohio. In 1880 he became agent of the Baltimore and Ohio express at Columbus, and in 1882 was advanced to traveling freight agent, with headquarters in that city.

Having come to Pittsburgh as chief clerk to the general freight agent, Mr. Galleher was made division freight agent in 1887. On August 16, 1896, he was promoted to be general freight agent of the Pittsburgh district and in March, 1897, was transferred to Baltimore as general freight agent of the Eastern lines.

Alexander G. Hackstaff, vice-president of the Illinois Central and a director of that company, died on November 28th, at his home in New York. He was born on May 16, 1852, at Middletown, Conn., and began railway work in 1871 as a civil engineer on the Pennsylvania Railroad. He went to the Illinois Central in 1880 as a clerk in the president's office at Chicago. In May, 1887, he was appointed acting secretary of the same road, and on March 19, 1888, was made secretary. He was elected third vice-president of the Illinois Central in 1901. He was also a director of the Central of Georgia and of the United States Express Company.

F. H. Bainbridge, formerly principal assistant engineer of the Chicago & Northwestern, with headquarters at Chicago, and later resident engineer, died at Chicago, December 3d, at the age of 49 years.

John S. B. Thompson, of Atlanta, Ga., for years prominent in the supervising of the Southern Railway, died at Richmond, Va., on December 11th. Mr. Thompson was a native of Culpeper County, Virginia, and was born June 10, 1858. In July, 1878, he began his railroad career with the Virginia Midland Railroad, afterward going with the Long Island Railroad, and then holding responsible positions with branch roads under the supervision of the Southern Railway, of which for a number of years he was assistant to the president.

Col. S. C. Reynolds, of Toledo, for many years a director of the Wabash Company, president of the First National Bank of Toledo and prominent in Ohio business affairs, is dead.

Joseph Davenport, 97 years old, inventor of the locomotive cab and pilot, and builder of the first wrought iron bridge in the United States, died recently at Zoar, the socialist settlement near Massilon, Ohio, where he had been a recluse for years.

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TRAFFIC AND RATES.

Heavy Traffic Movements for December.—The closing months of the old year witnessed a volume of tonnage which equalled, if it did not exceed any record for a corresponding period of previous years. While the car situation improved somewhat during December, the traffic movements continued heavy. Grain shipments were unusually large and the holiday trade called for facilities which taxed the carriers to the utmost. The car situation has become an all important factor, and the pressure under which the railroads have been laboring is evidenced by the acceleration in new equipment orders during the past three months. As an illustration of the freight congestion, it is of interest to note that on December 14th, there were several miles of freighters laden with grain lying within the breakwater of the outer harbor of Buffalo. This grain will be transshipped at the rate of 500 to 1,000 carloads a day during the winter months, and a large part of the remainder is likely to be shipped by canal in the spring. In fact the grain movement both at interior points and all along the lake front has been of an unprecedented volume, and is calling for thousands of cars with which to handle it. The iron ore and coal shipments down the lakes have also been heavy, the former totalling nearly 48,000,000 tons for the year and establishing a new high record. In the annual report on lake commerce coming from the canal office at the Soo Locks, is found the statement that the increased tonnage during 1912 amounted to 15,000,000 tons of registered freight and nearly 20,000,000 tons of unregistered freight. This is indicative of conditions which have had to be met in other sections of the country.

Export and import figures further strengthen the belief that the country is engaged in a record making commerce. An estimate recently prepared and published by the United States Government, asserts that the foreign trade of the United States in 1912 crossed the $4,000,000,000 line. Its highest former record was approximately $3,500,000,000 in 1911, and it only crossed the $3,000,000,000 for the first time in 1906. This gives some faint indication of the tremendous industrial and commercial strides made within the past seven years. Imports have practically doubled in value since 1901 and exports have practically doubled since 1904. It is also asserted, through the same source, that the world's international commerce has established a new high record in 1912, present indications being that the total will aggregate $35,000,000,000 against $31,000,000,000 in 1910 and $20,000,000,000 in 1900.

Heavy Increases in Ocean Freight.—Heavy increases in freight and passenger offerings between San Francisco and the Philippine Islands have caused the Pacific Mail Steamship Company and the Toyo Kisen Kaisha to double their schedules of direct trips to the Philippines. Of out-bound freight, cotton is said to be the principal factor in the increase. Larger quantities of hemp and other island products are coming this way.

On the Atlantic Coast all ships are carrying capacity cargoes and many of the regular lines have found themselves unable to handle all the freight offered and have been forced, when possible, to charter extra steamers. Generally, however, they have found that no vessels were available and that the price of charters have doubled in two years.

Extra Fare Reduction on Lake Shore.—Slower time between New York and Chicago by the Lake Shore Limited via the New York Central has reduced the extra fare to $2 instead of $3.

Change in Excess Baggage Rates.—Beginning January 1st, excess baggage rates on all lines operating eastward from Chicago will be based on the fare applicable via the route of the ticket. This will give passengers on differential lines the benefit of a lower charge for excess baggage.

Passes Cancelled in Colorado.—The railroads of Colorado have decided to cancel all free transportation in that State, outside of that given to railroad employees. Heretofore, it has been their custom on intrastate business to distribute free transportation to many public officials and often to prominent shippers.

Heavy Travel to the Pacific Coast.—Passenger traffic officials of railroads operating westward from Chicago report that there is an unusually heavy winter tourist travel to California. Extra coaches are being attached to through California trains almost daily.

Passenger travel to points in Florida is also reported to be greater in volume than at this time last year.

Reduced Fares for Presidential Inauguration.—Reduced fares for the inauguration ceremonies in Washington, March 4th next, have been announced by the eastern railroads. From points more than 100 miles and not more than 250 miles from the National Capital the fare will be two cents a mile in each direction, and from points more than 250 miles from Washington the rate will be on the basis of a one and one-half fare for the round trip.

New Grain Tariff Announced by Grand Trunk.—With less than half of the grain crop of Western Canada moved at the close of navigation, the Grand Trunk Pacific Railway Company announces a new tariff by which all grain accumulated on its lines will be shipped through the United States to Portland, Me., Boston and New York. The new tariff allows milling in transit.

A similar tariff, it is stated, has been made by the Canadian Northern, and it is estimated that nearly 75,000,000 bushels of Canadian grain will pass through the United States during the winter.

Losses in Transit.—The Pere Marquette Railroad has issued an appeal to its employes in which it points out that the loss and damage claims against the company have assumed alarming proportions and that the reputation of the railroad as a reliable freight carrier is suffering. Pere Marquette paid during the last fiscal year on account of lost and damaged freight a total of $178,997.71.

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Record of Pennsylvania Railroad's New York Station.—It is officially reported that more than 21,000,000 passengers used the Pennsylvania station in New York in the first two years of its operation. By increasing the efficiency of operation, the Pennsylvania and Long Island railroads were able to handle in the year just ending 2,241,050 more passengers than in 1911, while running about 10,000 less trains.

Action on Summer Tourist Rates.—At a meeting of the Trans-continental Passenger Association held in Chicago last month, summer tourist fares to the Pacific Coast during 1913 were placed upon the same basis as prevailed last year. The round-trip first-class summer tourist fare from Chicago will be $72.50. Tickets will be on sale from June 1st to September 30th, and the return limit will be October 31st. Convention rates to the Pacific Coast also will be the same as those prevailing during the past year. The round-trip fare from Chicago will be $65, with a return limit of sixty days. A year ago convention fares were increased from $62.50 to $65.

Action on the question of adopting a plan whereby the cost of operating through trains can be reduced was deferred until the next meeting of the association.

Railroad lines entering California, Arizona and Nevada, have announced one-way colonist rates to points in those States for the spring of 1913. The sale dates will be March 15th to April 15th. From Omaha and Kansas City the rates will be $30; from Chicago, $38, and from St. Louis and New Orleans, $37.

LEGISLATION.

Oregon's Workingmen's Compensation Bill.—Important among the bills to be considered at the coming session of the Oregon Legislature is a workingmen's compensation act that has been drafted by a special commission, appointed by the Governor, representing the State Grange, organized labor and the employers. The measure is a composite of what the commission regarded as the salient features of similar statutes of a number of other States.

In the first place, the proposed law provides for an elective compensation plan. It is not compulsory on any employer to avail himself of its conditions. As drafted the measure covers only the most dangerous forms of employment, although employers conducting less hazardous operations may, with the consent of their employes, operate under its provisions. The employer who elects not to operate under the terms of the law, however, will be held liable for negligence and will lose the benefit of the common law defenses of contributory negligence, negligence of fellow servants and assumption of risk.

The bill provides for an industrial commission of three members, who shall investigate all cases coming under the operation of the measure and whose findings of facts shall be final. It will be the function of the commission to determine the allowance to be made to injured persons.

New York Bill Covering Railway Track Scales.—A bill has been prepared by the State Superintendent of Weights and Measures of New York, which has for its purpose the maintenance of a uniform accuracy of railroad track scales through the State. The bill which will be presented to the next Legislature proposes that the State purchase several test cars, whose weight shall be indisputably determined by State standards, and by means of these, establish a scale inspection service.

Superintendent Reichmann believes such service could be made self-supporting by charging for the tests and that the plan advocated would eliminate disputes and lawsuits due to weighing, and would assist railroads in locating where shortages occur.

Bill to Relieve Car Shortage.—Congressman Prouty, of Iowa, has introduced a bill in the National House of Representatives, which has for its object the alleviation of conditions brought about by car shortages. The gist of the measure is that railroad companies shall require consignees to unload their freight in five days, demurrage or no demurrage, and that if the railroad company does not enforce this right, it shall be liable in damages to the person ordering cars and not receiving them.

Mr. Prouty says 50,000 coal cars in sea coast cities are tied up, loaded with coal, the consignees preferring to pay demurrage and use them for warehouse purposes. He will follow this bill with one requiring the Interstate Commerce Commission to investigate the rolling stock of roads, and if it is inadequate compel the roads to make it adequate.

Railroad Valuation Bill.—The Adamson bill for the physical valuation of railroads which passed the National House of Representatives last month, and which is discussed more fully in another section of this issue, imposes a three-year task on the Interstate Commerce Commission, which, it is estimated, will cost about $3,000,000. The bill directs the Interstate Commerce Commission to engage the necessary number of experts to make a thorough inventory of the property of all railroads engaged in interstate commerce. It is provided that the investigation shall embrace the rolling stock and bond issues and all assets and liabilities of common carriers. The report accompanying the bill declares that the anomaly has grown up in the country whereby railroads charge on what they owe as well as on what they own and that nowhere else does this condition exist.

Agitation for State Ownership of Railroad in New England.—Following a movement in Massachusetts, where bills have been filed in the Legislature proposing the purchase of the Boston & Maine Railroad by the State, Representative Lewis W. Brewster has prepared a bill of similar import to be acted upon by the New Hampshire Legislature.

Mr. Brewster proposes that New Hampshire acquire such portions of the Boston & Maine system as lie within the State.

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LEGAL.

Railroads Liable for Registered Mail.—Judge Marshall, in the United States District Court, at Salt Lake City, has overruled the demurrer of the Union Pacific against the complaint of the Government asking $12,000 damages for postal losses in a disaster at Ah Say, Wyoming, seven years ago.

Oregon's Rate Bill Suspended.—Oregon's first initiative rate bill was temporarily suspended in December at Portland, Oregon, by the Federal Court, three judges sitting in the case. Pending a final hearing of the issue raised by the railways, as to whether the bill is practicable and constitutional, the Court held that the railways should file bonds aggregating $55,000.

Illinois Tax Decision.—The Illinois Supreme Court sustains the Illinois Tax Reform League's contention that stocks held in foreign corporations are taxable and orders the Board of Review to hear and review the Reform League's complaints. Nearly $200,000,000 worth of securities are involved and should ownership of the securities be proven the taxes, covering a period of several years, would aggregate nearly $5,000,000.

To Test Norris Act.—It is reported that a decision has been reached by the management of the Union Pacific Railroad to test the constitutionality of the Norris act, passed by the last Congress, which limits the width of the right of way or the Union Pacific to 200 feet. It is contended by the railroad that a 400-foot right of way between Omaha and Ogden and Kansas City and Cheyenne was granted it by the government when the road was chartered.

Rules Against Louisville and Nashville.—Judge Evans, in the Federal Court at Louisville, has rendered decision to the effect that the Louisville and Nashville Railroad had no right to force the Western Union Telegraph Company to remove immediately its equipment from the Louisville and Nashville tracks in the State of Kentucky. A contract between the railroad and the telegraph company expired last August and the railroad ordered the Western Union to remove its equipment, but the telegraph company sued for a right of way. Judge Evans also held that the matter of compensation for a right of way should be left to a jury. The decision was based on an act of the Kentucky Legislature, which gives a telegraph or telephone company the privilege of condemning a right of way along the road of a common carrier.

Florida East Coast Railway Rate Problem.—The financial wisdom of the mighty engineering feat that extended the Florida East Coast Railway over the Keys to Key West, Fla., is a problem laid before the Supreme Court of the United States. It arises out of a prolonged contest over freight rates on Florida citrus fruits and vegetables.

It has been estimated that it cost $40,000 a mile to build the railroad north from Homestead, but four times that amount to construct it south over the Keys.

The Interstate Commerce Commission held that the company was not entitled to charge freight rates which would yield remuneration upon this high expenditure. The commerce court upheld the decision. To procure a reversal of these holdings the case has been brought to the Supreme Court of the United States.

Illinois Charter Fee Paid Under Protest.—The Chicago, Burlington & Quincy has paid into the Illinois State Treasury under protest, a check for $110,885 as a fee for an extension for fifty years of the road's charter in that State. Attorneys for the railroad contend the road is operating under a perpetual charter, but to be on the safe side they decided to take advantage of the recent act of the legislature allowing corporations the right to extend their charters fifty years.

The law in question is silent on the subject of fees in connection with such extensions, but the Secretary of State held they must be paid. Attorneys for the railroad have given notice that action will be instituted in the Supreme Court to recover the fee.

Commission Upheld in Stock Yards' Case.—The Supreme Court of the United States has decided that the Chicago Junction Railways Co. is subject to the control of the Interstate Commerce Commission and also that the Union Stock Yards Co., of Chicago, is a common carrier. The effect of the decision is to place both the Stock Yards Company and the Junction Railways under the supervision of the Interstate Commerce Commission. The court reversed the Commerce Court's decision as to the Stock Yards Company and affirmed it regarding the Junction Railways.

The suits were brought to restrain the two companies from further engaging in interstate commerce until they filed tariffs as required by the Interstate Commerce Act.

A side-light of the case was a ruling that the offer of a bonus to a packing company to locate near the Stock Yards was illegal.

Liability Act Tested.—The federal employers liability act was tested in New York County courts for the first time last month when a jury in the supreme court decided that under its provisions Terrence Burtnett was entitled to $10,000 from the Erie Railroad because he lost a foot while serving as brakeman in the interstate service of this line.

Justice Delany, who presided, described the case to the jury as one of unusual importance to railroad corporations. Counsel for the brakeman declared that Burtnett was thrown from the top of a freight car when the engineer applied the air brakes too violently. The railroad attorneys asserted that the accident was due to the icy condition of the car roof and Burtnett's negligence.

Under the federal act the plaintiff's council contended that the brakeman was entitled to recover, even if he was guilty of contributory negligence, but in that event the damage should be reduced to the extent to which the jury found the brakeman's negligence contributed to the result. Justice Delany took the view contended by the attorney and so charged the jury.

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Jim Crow Decision in Mississippi.—Under a decision of the Mississippi Supreme Court handed down by Justice Cook in the case of the Alabama and Vicksburg Railroad Company vs. Miss Pearl Morris, the interstate as well as intrastate roads may be required to maintain double Pullman service as well as separate coaches for the two races. The question as to interstate passenger service has never gone to the United States Supreme Court, but the interstate law has been upheld by that tribunal in a case sent up from that State.

In the present case Miss Morris, a white woman, demanded that negroes be ejected from the sleeper after the train crossed the Mississippi River at Vicksburg, but the conductor declined, stating his negro passengers were interstate passengers. Miss Morris left the Pullman and sat up all night in the coach. She afterward entered suit in the Warren County Circuit Court and was promptly given a verdict for $15,000. The railroad appealed and got a remittur of $2,000, the damages being declared out of reason, but otherwise the verdict is affirmed. It will be appealed to Washington.

Oklahoma Supreme Court Sustains Rate Order.—The Oklahoma Supreme Court has sustained the last of the freight rate orders promulgated by the Corporation Commission in 1911 to succeed those rates enjoined by the Federal Court. The rates applied on coal and coke, lumber and forest products, grain and hay, oil and by-products and street and building materials.

Under writs of supersedeas the rates were not put in force at the time of their promulgation in 1911, although refunds will be made to the shippers of sums paid in excess of the new schedules after July of that year. The old rates will be charged and refunds made later, until new tariffs can be printed embodying the schedules affirmed by the court.

As finally affirmed by the court, the rates vary slightly from the schedules as promulgated in 1911, under the terms of an agreement reached at a conference in St. Louis between the Commission and the officials of the various railroads. The carriers agreed at that time to accept slightly increased rates, and to make the refunds to shippers on that basis, without further opposition.

No mention of the conference was made to the Supreme Court, but the agreed rates were submitted to the court and recommended to be affirmed. The court accepted the recommendations in full.

Rutland Injunction Upset.—Through decision of the Appellate Division of the Supreme Court of New York, the order restraining the New York Central from selling its control of the Rutland to the New Haven Railroad was reversed. In the prevailing opinion Presiding Justice Ingraham declares that the suit apparently was brought in the interest of minority stockholders of the Rutland to compel the New Haven to purchase their stock at the same price paid the Central.

In 1911, the Central, which owns the controlling interest in the Rutland, agreed to sell the road to the New Haven at $105 a share, provided the latter would take up demand notes of the Rutland amounting to $873,000. In a suit brought by Tompkins C. Delavan and others who own 1349 Rutland shares, the sale was enjoined. Their complaint alleged that the transfer would effect a combination in violation of the Sherman law by destroying competition between the Rutland-New York Central and New Haven-Boston & Maine systems.

Justice Ingraham points out that the system of the New York Central is in fact a much greater competitor of the Rutland than is the New Haven, and says that if it would be illegal for the New Haven to obtain control of the Rutland, it would be a more serious violation of the Federal statute for the Central to continue in control. The effect of the injunction would be to restrain the Central from relieving itself of ownership, which is alleged to violate the law.

Fined $5,000 for Misdescribing Freight.—In our weekly issue of July 5, 1912, under the caption of "The Shippers' Evasion of the Interstate Commerce Law," we pointed out the extent to which the requirements of the law were defeated by shippers misdescribing their property and obtaining lower than the legal tariff rates, and directed attention to the comparatively few convictions that have been secured for this character of violations.

The Interstate Commerce Commission together with the Department of Justice, through the various United States District Attorneys, have evidently become more active with respect to these matters, and we note a recent instance where the firm of A.Mendelson's Sons, of Albany, N. Y., were indicted for misdescribing shipments of chloride of lime as concentrated lye. The amount of 81 cents would have been saved by the shippers had the goods been forwarded under the wrong description. The shippers plead guilty and were fined $5,000. This case is noteworthy in that the maximum fine was imposed for an attempt to obtain transportation at less than the regularly established rates.

STATE COMMISSIONS.

Arizona.—The State Corporation Commission has issued an order suspending the operation of the 3-cent fare law, on the affidavit of a railroad official that the rate would not be remunerative. The order will be effective pending an investigation. State and county officials already had been enjoined by the United States Court of Appeals from enforcing the law until a hearing is held on January 21st.

Canada.—The Dominion Railway Commission has issued an order granting the application of the Canadian Pacific Railway, Grand Trunk, Canadian Northern and Michigan Central railroads to increase their demurrage charges on freight cars from $1 per day to $2 and $3. The increased rates, however, will be allowed only from December 15th, 1912 to March 31st of 1913. The railways asked for $2, $3 and $4 for the first, second and third day, respectively, after the free time allowed, but the $4 charge was not sanctioned by the Board. Henceforth, $2 will be assessed by the railways for the first 24 hours after free time and $3 for each succeeding day. The order, however, is not to apply to cars held in transit at stop-over points under

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published tariffs which have been filed with the Board.

Assistant Commissioner D'Arcy Scott, who heard the case, in his judgment said in part: "It cannot be denied that a car shortage equal to, if not greater than, that of last year is imminent; and, unless some steps are taken to secure an adequate supply of cars, traffic will be seriously handicapped during the approaching winter and spring, until the opening of navigation. It is urged by the railway companies that the unnecessary detention of cars by shippers and consignees not only handicaps the railway companies by depriving them of cars which would otherwise be available for traffic, but also causes congestion by blocking steam tracks and private sidings in terminals. It is contended that at least 50 per cent. of what is called railway detentions, that is, the unnecessary holding of cars in terminals by the railway companies, is due to the blocking of these terminals by the unnecessary detention of cars by shippers and consignees."

Railroads operating in Michigan applied to the Railroad Commission of that State a few weeks ago for permission to increase demurrage charges from $1 a day after forty-eight hours to $5 a day.

Connecticut.—Chief Engineer Elwell, of the Public Utilities Committee filed his report last month with the Commission on the inspection of track conditions on the New York, New Haven & Hartford Railroad between New York State line and New Haven. Summarizing conditions, the report says:

"The roadbed in general was found to be in excellent condition, well-ballasted and true as to line and grade. A number of defects were found and noted. None of these defects is of such extreme character as to be pronounced immediately unsafe or dangerous."

Then follows a description of each defect, and the recommendations for changes.

The inspection, ordered by the Commission, was made, according to the report, by three engineers working under Mr. Elwell's direction. Each tie and each foot of roadbed was inspected.

In obedience to the orders of the Public Utilities Commission, issued since their investigation of the Westport wreck on the New Haven, President Mellen has issued instructions that wherever practicable all cross-overs between parallel main tracks used for trains going in the same direction and through which trains are detoured, be supplied with No. 20 cross-over frogs.

All trains scheduled at fifteen miles or more an hour on straight tracks must stop before making cross-over movements. Towermen are not to set switches for such movements until such trains make a full stop. This installation of new frogs applies to the whole system wherever four tracks are used and it is directed that the work be done at once.

Illinois.—In a statement made before the State Railroad and Warehouse Commission, M. L. Bell, attorney for the Rock Island said that railroad employees who post notices on bulletin boards that trains will be on time when they know they will be late should be sent to jail.

Kentucky.—The Railroad Commission has made a tentative assessment of the physical property of the various railroad companies in the State based upon the valuation paid on by the companies in 1911, with the understanding that the commission shall make a more complete investigation at the earliest possible date and from the additional evidence obtained make a final assessment. The tentative assessment will be paid by the railroad companies as provided by law. The final assessment made by the commission will be subject to contest. It is likely that the assessment of several of the railroads will be increased many millions.

Louisiana.—The State Railroad Commission is considering the adoption of the following rule to govern the protection of trains stopped or delayed in transit:

RULE.

When a train stops or is delayed, under circumstances in which it may be overtaken by another train, the flagman must go back immediately with stop signals a sufficient distance to insure full protection. When recalled he may return to his train, first placing two torpedoes on the rail, when the conditions requite it. The front of a train must be protected in the same way when necessary by front brakeman. If the front brakeman is not available the fireman must act in his place.

(a)—The flagman shall immediately after he leaves his train, light a red fusee and carry it with him back one-quarter of a mile to the point where he places the first torpedo and must leave a burning fusee at the same point as the first torpedo.

A sufficient distance to insure full protection requires that the flagman shall go back to a point one-fourth of a mile from the rear of his train, where he must place one torpedo on the rail. He must then continue to go back at least one-half mile from the rear of his train and place two torpedoes on the rail, not more than two hundred feet apart; he may then return to within one-fourth mile from the rear of his train, and remain there until recalled. If a passenger train is due he must remain until it arrives. When he comes in he will remove the torpedo nearest to train, but the two torpedoes must be left on the rail as a caution signal to a following train.

The recall of flagman is the most critical period, and when there is not a clear view of at least one-half mile, train must be moved forward a sufficient distance to insure safety before flagman is recalled. During foggy or stormy weather, or in the vicinity of obscure curves or descending grades, or when other conditions require it, the flagman will increase the distance. When a train is flagged by a flagman engineman must obtain a thorough explanation of the cause, stopping if necessary.

(b)—Should the speed of a train be reduced and its rear thereby endangered, making it necessary to check a following train before a flagman can get off, a lighted red fusee must be thrown on the track at intervals to insure the safety of the leading train.

(c)—In block signal districts where automatic home block signal governing the track in use can be plainly seen at rear of the train to

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be at stop, its location being not less than one-half mile from the train to be protected, it will be unnecessary for flagman to go back.

(d)—When a flagman is sent out with specific instructions affecting the rights of trains, such instructions must be in writing.

(e)—When a flagman is sent to a station on a train, he will ride on the engine and engineman must stop and let him off at the first switch.

Maryland.—The Public Service Commission has under consideration the extension of free time in unloading freight cars.

Officials of all the railroads centering in Baltimore attended a hearing yesterday before the Public Service Commission, at which the question of demurrage was taken up.

There has been some complaint that the period allowed receivers of freight to unload cars is not long enough. The railroads give them 48 hours, with certain allowances for bad weather. There is also a system of credits and debits in the cases of those whose freight receipts are large, by which if a man receives a number of cars of freight and unloads them in less than the time allowed, he is given credit for the time allowance not used, and this is credited to him when he takes a longer time than is allowed with other cars.

This system has the sanction of the Interstate Commerce Commission. On the other hand, it is contended that since the size of freight cars has been so materially increased 48 hours is not sufficient for unloading, particularly in the country where farmers and others have to haul the stuff they unload several miles.

Michigan.—The Commission held the case under advisement. Chairman C. L. Glasgod of the State Railroad Commission has been notified that the Minneapolis, St. Paul & Sault Ste. Marie Railroad is willing to comply with the provisions of the Michigan law requiring all upper peninsula railroads to carry passengers for two cents per mile. The law was passed at the last regular sessions of the Legislature.

Minnesota.—In response to petitions to the Railroad Commission for an order abolishing switching charges by the Minneapolis Eastern, Minneapolis Western, Minnesota Transfer and the Railway Transfer, the Omaha and the St. Paul jointly deny that their lines include the Minnesota Eastern, or that that road is merely a switching facility for them.

The Great Northern admits control of practically all the stock of the Minneapolis Western but says the road is operated as a regular common carrier and has a published tariff covering all its business. Jurisdiction of the State Commission as to its interstate traffic is denied. Nine roads answer for the Minnesota Transfer on the same basis.

New York.—The Up-State Public Service Commission has granted the application of the Fitchburg Railroad Co., for authority to issue $400,000 20-year 4½ per cent. bonds, to be sold at par. The bonds are to be issued to the Boston & Maine Railroad, which has a lease with the Fitchburg, in payment for expenditures in the past year for various improvements along the line of the Fitchburg.

The Public Service Commission has granted an extension to the New York Central for the completion of its Grand Central Terminal improvements from January 1st next to January 1, 1914, which had previously been approved by the Board of Estimate. It developed at the hearing that the street traffic on Forty-third Street will be entirely restored by March 1, 1913 and the streets at Forty-fourth Street and Vanderbilt Avenue, will be in complete order by April 1, 1913. When that is accomplished the traffic at Forty-fifth Street, will be greatly relieved and in reply to a question by counsel to the commission the New York Central through its officials testified that the street obstruction would be entirely relieved and all the improvements completed by or before December 31, 1913.

Application has been made to the Public Service Commission by the New York Central & Hudson River Railroad and the Lake Shore & Michigan Southern Railway companies for the approval of New York Central lines equipment trust agreement of 1913 and the authorization of the present issue of $12,547,000 of trust certificates thereunder. The petitioners ask that the certificates be allowed at not less than 97.

The proceeds are to be used for the purchase of equipment, including locomotives, coaches and cars.

Ohio.—Application has been made by the Lake Shore & Michigan Southern, the Cleveland, Cincinnati, Chicago & St. Louis, the Toledo & Ohio Central, and the Pittsburgh & Lake Erie roads, as subsidiaries of the New York Central, for the issue of certificates aggregating $24,000,000 to cover purchase of new equipment. Of the total amount sought, $13,941,474 is needed immediately, and the remainder is required to cover later demands.

The Public Service Commission has authorized the Cleveland, Cincinnati, Chicago and St. Louis Railway Company to issue its General Mortgage Bonds of the par value of $1,578,000 to be sold for the best price obtainable and for not less than ninety (90) per centum of the par value thereof.

The Public Service Commission has authorized the Cleveland & Pittsburgh Railroad Company to issue, transfer and deliver to the Pennsylvania Railroad Company, its special guaranteed four per cent. stock of the par value of $2,019,100, it being the opinion and finding of the Commission that the issue of said stock is reasonably required for the proper purposes of said corporation.

The stock is to be issued to the Pennsylvania Railroad in full payment and discharge of the obligation created in the construction and provision of improvements and additions to the Cleveland and Pittsburgh Railroad Company, and to the facilities and equipment thereof.

The Lorain, Ashland & Southern Railroad Co., of which Joseph Ramsey, Jr., is president, has obtained authority from the Public Service Commission to issue $1,750,000 capital stock, $1,500,000 first mortgage bonds, and $1,200,000 second mortgage bonds. The money is to be used for completing a line of railroad that will connect Lake Erie at Lorain with the Fort Wayne division of the Pennsylvania Railroad at Custaloga.

A reduction of $16,982,832 in the 1912 valuation of the New York Central lines in Ohio

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is asked by representatives of that system from the State Tax Commission. This is the largest sought since the Commission has been in operation. It is a little more than 10 per cent. of the 1912 valuation, which was fixed at $147,289,670. The largest reduction is asked on the Lake Shore valuation, which the New York Central officials wish decreased $7,390,273. They also ask a reduction of $5,801,647 in the Big Four valuation.

Oklahoma.—State Senator Vandeventer has complained informally to the State Corporation Commission that the railroad companies have stopped selling mileage books in Oklahoma at 2½ cents a mile. Chairman Love, of the Commission, has announced that he will take up the matter of a State mileage book system at once.

Pennsylvania.—The State Railroad Commission has informed the Pennsylvania Railroad that its investigations of the recent accident near Glen Loch had disclosed the fact that the portion of the bridge structure which broke and occasioned the accident was so located as not to be readily examined and its condition properly ascertained by the bridge inspectors.

This fact, the Commission said, shows the necessity of either so constructing bridges or of so locating all parts thereof that in their inspection every portion of the structure may be accessible for proper examination without the danger of overlooking latent or hidden defects.

At the anthracite rate hearing conducted in Philadelphia last month, George Stuart Patterson, attorney for the Pennsylvania Railroad went over the list of questions submitted in advance by the complainants as was done by counsel for the Reading and Jersey Central Railroads. Mr. Patterson said that no figures or accounts existed or could be compiled, showing cost of conducting anthracite traffic.

In reply to request for the production of contracts regarding the apportionment of anthracite freight or the allotment of coal cars, he said there were no such contracts and never had been.

Replying to request for a statement showing the amount of freight transported in the coal cars on their return trips to the anthracite mines he said that the amount of such freight was negligible and was limited to a little iron ore taken part way up the Schuylkill Valley. Mr. Patterson said witnesses would be produced to give exact details.

Robert H. Large, general coal freight agent of the Pennsylvania Railroad Co., testified to the average distances from the various coal fields to Philadelphia via the Pennsylvania and rates.

When asked why the rates for delivering at Greenwich piers for lighterage were about 30 cents per ton lower than the rates for track delivery Mr. Large said that this differential was made to meet a commercial necessity, the object of which was three fold: First, to allow a compensation for the breakage, involved in lighterage operations; second, to permit dealers having yards on the water front, but with no track connections, to get their coal on an equal basis with dealers having railway connections; third, to permit dealers having a connection with one railroad and also having a water front to have two ways instead of one of obtaining their coal.

The State Railroad Commission has transmitted to the attorney-general the records in its investigation of the accident on the Lignier Valley Railroad July 5th, in which many persons were killed. The letter states that the company declined to furnish an explanation of its method of handling the wrecked trains or to supply the customary accident report.

Texas.—The State Railroad Commission has issued an order requiring the railroads of Texas to absorb switching charges. This, it is claimed by the representatives of the lines affected, will cause an enormous decrease in their annual revenue. The order is effective January 1, 1913, and is of much importance to the shipping interests of the State. In substance the order requires the railroads to absorb all switching charges on competitive and non-competitive business, with a guarantee of $7.50 transportation revenue on each car. The new rule reads as follows:

"Switching charges shall, in all cases, be absorbed by the line or lines of railway performing the transportation haul on the car switched, out of the freight charges accruing under the authorized freight rate applicable for the transportation of the commodity shipped between origin and destination stations; provided that the net transportation charge shall not in any case, by such absorption, be reduced below $7.50 per car."

William D. Williams, a member of the State Railroad Commission, and R. D. Parker, engineer of that body, have been making investigations of numerous complaints received on delayed freight shipments on Texas line of the Southern Pacific, particularly the Houston and Texas Central and the Galveston, Harrisburg and San Antonio roads. It is alleged in these complaints that many shippers have suffered heavy pecuniary losses due to delays of shipments in transit.

It is shown by the report of the State Railroad Commission for the fiscal year ended June 30, 1912, recently issued, that there was constructed during that year 615 miles of new main track, making a total of 14,941 miles of railway in Texas. There was an increase during the year of 838 miles of siding track, bringing up the total of this character of track to 3,758 miles. The Pecos & Northern Texas, with 248.83 miles; the Kansas City, Mexico & Orient with 138.46 miles, and the Gulf, Colorado & Santa Fe with 126.58 miles, lead the increases. Three new lines, the Brownwood North & South, with 19.16 miles; Jefferson & Northwestern, with 40.01 miles, and Port Bolivar & Iron Ore Railway, with 29.66 miles, were placed in operation with 88.83 miles of track between them.

It is stated that an investigation will be made by the State Railroad Commission to determine to what extent the Missouri Pacific is to bring the International and Great Northern into its system.

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ORGANIZATION.

Urge Lower Auto Rates.—The Southern California Automobile Dealers' Association, held a meeting at Los Angeles, Cal., last month at which they inaugurated a National Campaign for obtaining lower rates from the railroads of the United States on trans-continental shipments of automobiles and accessories.

Their effort will be to secure a permanent revision of car load rates on a comparative basis with horse drawn vehicles and other lines of manufactured products of similar value.

Industrial Traffic Leagues Appeal to Shippers and the Railroads.—To obtain clean cars the National Industrial Traffic League has issued the following statement.

Shippers are entitled to clean cars for loading and they do not get them always.

This was due to consignees of certain commodities leaving refuse in cars.

The National Industrial Traffic League should urge its members to clean cars thoroughly after unloading them and to leave nothing in the cars.

The league should use its influence with the railway associations toward having railroads issue instructions that shippers be furnished with clean cars.

Railway Clearing House of America.—In a recent meeting of the Society of Railway Financial Officers, in the membership of which 100 of the leading roads of the United States and Canada have representation, it was decided to establish the "Railway Clearing House of America." Its purpose is to clear or settle, with the payment of but little actual cash, all the balances between railroad, steamship and other companies now paid by draft.

The plan is in the hands of a special committee consisting of T. H. B. McKnight, treasurer of the Pennsylvania lines west; F. H. Hamilton, treasurer of the Frisco; H. C. Ansley, treasurer of the Southern; Byron Cassell, treasurer of the Monon; H. P. Connor, treasurer of the Pennsylvania Company; and W. H. Davis, controller of the Delaware & Hudson.

The committee has reached the conclusion that the proposition is feasible and will assure economy in making settlements, including interline charges for repairs to cars, expenses of joint facilities, allotments of pro rata share of fares, and miscellaneous bills. This will reduce the work of the accounting and treasury departments.

Safeguards necessary to preclude the possibility of losses by the defalcation of an employee or the failure of any road to pay its indebtedness to the clearing house can easily be provided. The management will be in the hands of 13 directors, six of them financial officers of different systems, six accounting officers and the other the president of the society.

There are in America nearly a thousand different transportation concerns which are eligible for membership in this association.

Annual Meeting of American Association of Freight Traffic Officers.—The annual meeting of the American Association of Freight Traffic Officers was held at Chicago on November 15th. Officers were elected for the ensuing year as follows: President, W. B. Groseclose, assistant freight traffic manager Missouri, Kansas & Texas Ry., Chicago, Ill.; first vice-president, Brent Arnold, general freight agent Louisville & Nashville Rd., Cincinnati, O.; second vice-president, L. N. Chalenor, freight traffic manager Seaboard Air Line, Norfolk, Va.; third vice-president, Paul Wadsworth, freight traffic manager Delaware & Hudson Co., Albany, N. Y.; fourth vice-president, G. A. Blair, general traffic manager Chicago & Alton Rd., Chicago, Ill.; secretary-treasurer, E. B. Crosley, general coal freight agent Philadelphia & Reading Ry., Philadelphia, Pa. At the annual banquet in the evening addresses were made by Wm. Ellis, W. L. Ross, president of the Toledo, St. Louis & Western; B. A. Worthington, president of the Chicago & Alton; W. H. Manss and W. D. Nesbit. George A. Blair, general traffic manager of the Chicago & Alton, presided as toastmaster.

Annual Meeting of the American Society of Mechanical Engineers.—The annual meeting of the American Society of Mechanical Engineers was held at the Engineering Societies' Building in New York, on December 4th, 5th and 6th. On December 5th, a railroad session was held and two papers were discussed, concerning the selection of locomotives with relation to the economics of railway operation, and the other on train lighting. The papers on which the discussions were based, were presented by O S. Beyer, Jr., of the Rock Island lines, and D. F Wood, of the Pennsylvania, and H. A. Curry, of the New York Central lines. Mr. Beyer's paper was divided into five sections as follows: (a) Service, typography, train speeds and train resistance. (b) Size and types of locomotives for passenger, freight and switching service. (c) Permanent plant and its relation to motive power selection, including track, yard and passenger sidings, locomotive terminals, shop facilities and clearances. (d) Relation of operating expenses to the selection of motive power, including transportation expenses, maintenance of equipment, maintenance of way and structures and overhead charges. (e) Final determination of the most economical locomotive to adopt.

The paper on train lighting was divided into seven sections as follows: (1) Brief historical sketch of car lighting, describing the periods of candle lighting, oil lighting, the various types of gas lighting, and finally the period of electric lighting. (2)The electric period from the first straight storage systems to date is discussed in detail and the storage battery, head end system and axle generating system are all presented with the reasons leading up to their adoption and the good and bad points of each. (3) Under the axle generating system the requirements for successful operation are discussed at length. Various types of suspension are described, also the regulators of different systems. (4) The question of voltages is discussed and in this connection lamps and fixtures with deflectors, etc., are covered. (5) Standardization of voltages and batteries. (6) Tabulation showing the number of electrically lighted cars, types of batteries, voltages, numbers of cells, etc. (7) A train lighting biography arranged in chronolog-

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ical order is appended to this paper. A number of experts on passenger train lighting have signified their intention of discussing this paper.

The officers for the coming year, which were recently elected by mailed ballots, were announced as follows:

President, W. F. M. Goss, dean of the Schools of Engineering of the University of Illinois, and former dean of Perdue University; vice-presidents, James Hartness, Springfield, Vt.; I. E. Moultrop, Boston; H. G. Stott, New York City; managers, W. B. Jackson, Chicago; H. M. Leland, Detroit; Alfred Nobles, New York City; treasurer, William H. Wiley, New York City. The president serves for one year, and the other officers for periods of varying length.

Annual Convention of the National Rivers and Harbors Congress.—At the closing session of the Annual Convention of the National Rivers and Harbors Congress, held in Washington last month, a resolution was adopted calling for an annual Congressional appropriation of at least $50,000,000 for waterway improvements. Another resolution urged the creation by Congress of a Department of Public Works, of which the corps of army engineers would be a part. The waterway congress also passed a resolution congratulating Congress "upon its grant of immunity through the recently enacted Panama Canal law from tolls upon ships engaged in our coastwise trade and upon the protection to waterborne commerce afforded by said law against railroad ownership or control of water lines."

American Railway Association Acts on Car Shortage Case.—The committee recently appointed by the American Railway Association, headed by Fairfax Harrison, to prevent the delay and diversion of freight car equipment, had acted on its first case, a complaint of the Baltimore & Ohio against the Wheeling & Lake Erie. The committee found that the condition complained of was due in a large measure to many cars of the Wheeling & Lake Erie being scattered over other roads, and not available for use by the Wheeling for several months. Deeming its function to be the remedying of the immediate situation first, the commission obtained, through the co-operation of other roads, a promise of prompt and direct return of the Wheeling & Lake Erie cars, so that the latter company would be able to return cars of the Baltimore & Ohio.

Annual Meeting of the Local Agents of the Frisco Lines.—A two days' session of the Frisco Local Agents' Association was held in St. Louis, last month, and interesting addresses were delivered by A. Hilton, general passenger agent, A. Douglass, vice-president of the Frisco. Sixty agents, representing ten divisions and four terminals of the Frisco, were in attendance.

The association is a link in the policy of the Frisco to extend the authority of the agents, and is formed for the purpose of proposing and promoting measures that will bring about more cordial relations between the railroad and the public, and also straighten out any tangles in which the various duties of the agent may have involved them, and thereby secure higher efficiency. The officers of the association are: R. C. Mills, president; W. P. McNair, vice-president; I. R. Drett, secretary.

Joint Southern Passenger Conference.—Members of the Southwestern Passenger Association and the Southeastern Passenger Association met in Galveston, Texas, on December 11th. About a hundred members were present, the former association being presided over by J. E. Hannegan, of St. Louis, and the latter by Joseph Richardson, of Atlanta. This is the first time these associations have met in Texas, and the second time a joint meeting has ever been held.

Trainmen Elect Officers.—The Legislative Board of the Brotherhood of Railway Trainmen was organized at Harrisburg, Pa., last month, and the following officers were elected: Chairman, G. B. Rowand, Linwood; vice-chairman, S. L. Curry, Philadelphia; secretary, H. C. Evans, Philadelphia; legislative representative, M. T. Robinson, Harrisburg.

These officers form the Executive Committee.

Railroads Defended at Social Service Conference of American Unitarian Association.—At the first Social Service Conference of the American Unitarian Association held in Boston, in December, James O. Fagan, of Waltham, who has written several books on railroad topics, charged that many criticisms of railroad enterprise are grossly exaggerated. He shrank from sweeping defence of the railroads, but asserted that American railway systems "are being moralized from the top and demoralized from the bottom." To show that they are subject to exaggerated criticism, Mr. Fagan pointed to the many spurious claims constantly brought against the companies and to the accidents to trespassers on railroad property that amounted in 1911 to 5,284 killed and 5,614 injured.

LABOR.

Settlement of Grand Trunk Pacific Strike.—The strike of the Grand Trunk Pacific machinists which has extended for more than a year and prevented the opening of the $3,000,000 shops at Transcona, Winnipeg, has been settled and the shops opened.

Settlement of Engineers' Wage Controversy.—The settlement of the eastern engineers' wage question by the arbitration board appointed for that purpose as well as the progress which has been made during December in the settlement of the demands of the firemen for increased pay and certain changed working regulations, will be found more fully discussed in another section of this issue.

Baldwin's Payrolls Reach Maximum Number.—The Baldwin Locomotive Works, at Philadelphia, has now on its payrolls the greatest number of men in the history of the industry, approximately 19,500. This compares with 19,200 in 1907, the highest previous record. President Alba B. Johnson says:

"The Baldwin Locomotive Works is now operating at the highest capacity ever reached. The outlook for the railway equipment business is good for at least five or six months ahead."

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Increase in Salaries by Pullman Company.—Twenty-five hundred office employees of the Pullman Company have had their salaries increased from 6 per cent. to 12 per cent., which means an additional expenditure by the Pullman Company for this purpose of about $300,000 per annum. Those sharing in the increase included clerks, bookkeepers, stenographers and other office employees, with the exception of officials.

President Taft Names Industrial Commission.—President Taft has named the following men as members of the Industrial Commission, created by Congress to investigate working conditions and endeavor to make more amicable the relations between capital and labor: Senator George Sutherland, of Utah; George B. Chandler, of Connecticut; Charles Simon Barrett, of Georgia; Frederick Delano, of Illinois; Adolph Lewisohn, of New York; Ferdinand Charles Schwedtman, of Missouri; Austin Bruce Garrettson, of Iowa; John B. Lennon, of Illinois; James O'Connell, of the District of Columbia.

Steel and Labor.—In a recent address before the Rochester Chamber of Commerce, Col. H. P. Mope, vice-president of the Carnegie Steel Company, strongly defended the steel corporation's attitude towards its workmen and its treatment of them, and declared that "in the great upward movement of humanity for better treatment, for better living, and for all the conditions which tend to a broader humanitarianism, broader civilization, and a greater degree of progress, the steel corporation has not been and will not be found lacking in interest, nor in support of such movements to the extent of its ability."

It is announced that the steel corporation has planned an adjustment of wage scales which will soon result in material increases particularly with respect to the wages paid unskilled labor. It is understood that not less than thirty thousand laborers will be benefited by this readjustment, and it is not improbable that many other employees in various minor capacities will share in the new scale.

Western Maryland President Honored by Road Force.—Last month, Alexander Robertson the retiring president of the Western Maryland Railway, was the guest at a banquet given to him by the conductors, firemen, engineers and general trainmen of his road. It is said to be the first dinner of its kind in railroad history and was a huge success. Those who attended included: J. M. Fitzgerald, who became Mr. Robertson's successor on January 1st; J. T. Hendricks, vice-president; L. F. Timmerman, secretary and treasurer; J. A. Shepherd, general manager; Austin Gallagher, industrial commissioner; F. M. Howell, general passenger agent; Superintendents F. L. Brendel, H. H. Berry and C. A. Steiner; C. M. Tritsch, superintendent of motive power; Dr. D. Z. Dunott, chief surgeon; W. T. Stringer, chief clerk to the president, and Edward Early, paymaster.

The dinner was the result of the great personal popularity of Mr. Robertson with the rank and file of the road's employees, and indicates how close association with the men can bring about results beneficial to the entire service. The following organizations were concerned in arranging the dinner: Order of Trainmen, Order of Railway Conductors, Brotherhood of Locomotive Engineers, Brotherhood of Locomotive Firemen and Engineers.

Labor Scarce in the Northwest.—There has been a scarcity of railroad labor in the northwest for a number of months. These conditions have so effected improvement work that none has recently been done except that which is absolutely necessary. It is generally believed that the cause of the shortage is the construction work on the Grand Trunk Pacific and the Canadian Northern lines, which has largely deprived the American Northwest of the laborers usually available. Commenting on this situation, an official of one of the Northwest roads recently said: "That with the Canadian Government subsidies and a plentiful supply of cash they have been able to make offers to railroad laborers which American railroads have been unable to meet. When these roads are finished, I expect to see a readjustment of conditions, which will send laborers back to this country and remedy the labor shortage in the American northwest."

EQUIPMENT.

Heavy Orders Placed During 1912.—The equipment orders of the railroads during 1912 were heavier than for any preceding year since 1906. Owing to the uncertainty which has to some extent governed railway operations during the past three or four years, the carriers had ordered only such equipment as was necessary for current demands. This year's remarkable increase in tonnage however, has forced many of the railways into the market for large supplies, and the purchase of cars and locomotives both in the passenger and freight service, were far in excess of those for 1911. Prices hardened somewhat in December and it was predicted that this would cause a shortening of orders. This has not been noticeable, however, up to the present time, and the equipment companies closed the year with the largest business on their books that has ever been known for this season. There are certain additional large orders also in sight, notably, those of the New York Central and Harriman Lines, so that it appears from the present outlook that the supply houses will have an abundance of work during 1913.

A feature of the year was the establishing of a record in steel car building, a great preference being shown for this class of equipment, both in connection with freight and passenger cars. Heavy orders were also placed for steel rails, and it is estimated that the rail rolling for the year amounted to about 3,500,000 tons. If orders already placed for 1913 are included, this total is increased to approximately 5,000,000 tons.

Among the important rail orders during December were: 30,000 tons for the Southern Pacific; 15,000 tons for the Canadian Northern; 58,800 tons for the Pennsylvania; 50,000 tons for the Southern Pacific; 25,000 tons for the Philadelphia and Reading and 1,500 open hearth steel rails for the Chicago, Rock Island and Pacific.

In the car and locomotive field, the Santa Fe

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is reported as having ordered 45 locomotives; the Rock Island 35 locomotives, 100 box cars, 500 coal cars, 250 refrigerator cars, 50 way cars and 68 passenger coaches. The Pittsburgh and Lake Erie, 2,000 steel hopper cars; the Delaware, Lackawanna and Western, 19 freight locomotives and 3 passenger locomotives; the Norfolk and Western, 500 steel underframe stock cars; Atchison, Topeka and Santa Fe, 45 locomotives; the Southern Railway, seven locomotives; the Illinois Central, 55 locomotives; the Chicago and Alton, 40 locomotives and the Pennsylvania Railroad, 3,000 freight cars. Besides these orders, it is understood that the Harriman Lines have put out inquiries for 12,000 freight cars, which call for a general assortment of hoppers, gondola, box and other types. It is also expected that an approval of the plans of the New York Central Lines by the Public Service Commission of Ohio, will be followed by an expenditure of nearly $14,000,000 for motive power and car equipment. The Harriman Lines are also reported to be making inquiries for bids on 246 locomotives and the St. Paul management has authorized the addition of about 10,000 freight cars to the company's rolling stock, a great majority of which will be built in the company's own shops at the rate of about 780 per month.

Union Pacific Wireless Line.—The Union Pacific Railway has made application to the Department of Commerce and Labor at Washington for a license to operate and maintain a wireless telegraph system along its lines. The company wishes to install a technical experiment station and the Government is requested to give permission for such a station which, it is stated, will be the second of the kind in the country. Several wireless stations, it is announced, will be constructed when the license is issued.

The Steel Passenger Car Equipment of the Pennsylvania.—The Pennsylvania Railroad has announced that it will shortly have available for use on the lines of its system a total of 2,872 solid steel passenger equipment cars, probably more than one-half of the all-steel passenger equipment in the United States, and representing an expenditure of approximately $40,000,000.

These steel passenger cars have been added to the company's equipment since June, 1906, when it was announced that all future additions to passenger equipment on the Pennsylvania system would be of all-steel construction.

New Safety Device on Grand Trunk.—The Grand Trunk Railway has adopted a device invented by Superintendent J. Coleman, of the car department at Point St. Charles, Montreal, for preventing the telescoping of passenger cars. It consists of a centrifugal lock in the center plate of the car to make the body of the car and the truck on which it rides a solid unit as far as practicable.

As the body of the car at present merely rests upon the trucks, unconnected except by a two-inch center pin, when the motion of the car is suddenly arrested the car readily leaves the trucks and strikes the car ahead. It is claimed that by making a rigid connection between the car body and the truck, the brake force will act equally on both.

Mr. Coleman's invention is simple, containing only five castings, which, when assembled, resemble two large nuts, one superimposed upon the other and held together by vertical keys and pin, which are easily removed. President E. J. Chamberlin is so favorably impressed with this device that he has ordered it to be added to all future equipment. It is now being built into 96 Grand Trunk passenger cars.

Grand Central Terminal in New York to Open in February.—The new Grand Central Station in New York will be completed early in February. The new building will have 100,000,000 cubic feet of space, and it is reported that the cost of construction and enlargement of the yards will be more than covered by the value of the new hotel, club and business buildings which will be erected on reclaimed adjacent property. The completion of this new terminal will rank it with the Pennsylvania Terminal, as the two greatest railway passenger stations in the world.

Queen and Crescent Improvements.—Modern reinforced concrete coal schutes of the bucket hoist type, each with a capacity of 300 tons, are to be erected by the Cincinnati, New Orleans & Texas Pacific Railway, at Danville, Ky., and Oakdale, Tenn., to take the place of the present facilities for coaling locomotives at these important divisional points, according to announcement made by the General Manager, Horace Baker. Announcement was also made that additional facilities would be provided at Lexington, Ky., consisting of an 80-ft. turntable and pit and additional tracks. Authority for the construction of these improvements has been granted and work will be begun as soon as possible.

CONSTRUCTION.

Northern Pacific Extension.—The Northern Pacific has announced that its Cowiche branch in the Yakima Valley will next year be extended ten miles to Tieton Village, in the heart of the newly settled Tieton unit of the Yakima irrigation project. Two miles must be built through a rocky canyon of the Cowiche River at great expense.

Buffalo, Rochester and Pittsburgh's Double Tracking.—Beginning early in March, 1913, the Buffalo, Rochester & Pittsburgh Railway Company will double track its Rochester Division between Ellicottville and Springville. Work on the Rochester Division alone, which is 124 miles long, will require an expenditure of $6,000,000. The work on the Buffalo Division will require an additional $2,500,000.

To Reduce Alton Grade.—The Chicago and Alton has appropriated $750,000 for the proposed grade reduction in the vicinity of Atlanta, Ill., twenty miles south of Bloomington. Eight years ago the work was started, but after $100,000 was expended it was learned that the expense would far exceed the estimate and work was ordered stopped.

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New Bridge for Wabash.—The Wabash is at the present time spending a large amount of money in renewing its bridge over the Illinois River at Valley City. The new bridge takes the place of a structure built twenty years ago, which is now too light to carry modern equipment. The structure consists of five heavy steel spans including the draw span which is operated by a novel internal combustion engine.

Central of Georgia to Enter Pensacola.—Announcement has been made that the Central of Georgia plans to enter Pensacola in the near future, by an extension of the line from Andalusia, Ala., to the Florida gulf port. Recently the Central of Georgia acquired what had originally been a lumber tram line from Union Springs, Ala., to Andalusia, later developed to a standard gauge.

Work on Northwestern Lines.—The Great Northern has decided to continue construction work throughout the winter on the Eastern Washington and British Columbia branches.

Rapid progress upon the grading for the Kettle Valley Railroad between Kettle River and Penticton, B. C., is reported by the contractors. The line will be one of the finest scenic routes in British Columbia, running 3,000 feet above Lake Okanigan, with the lake in sight most of the way. Grading is very heavy through solid rock.

Baltimore & Ohio Opens New Tunnel.—A new double track Sand Patch Tunnel on the Baltimore and Ohio was opened in December.

Three years ago the management began construction of a third track across the Allegheny Mountains and a general rehabilitation of the property through enlargement of facilities and purchase of new equipment at a cost in round figures of $60,000,000. The tunnel is at the summit of the Allegheny Mountains, between Sand Patch and Manilla, Pa., thirty miles west of Cumberland. Its cost was approximately $1,250,000.

To Shorten Line Between Baltimore and Washington.—It is understood that the Baltimore & Ohio Railroad has nearly completed its plans for a material shortening of its line between Baltimore and Washington. It is estimated that something like seven minutes will be cut off running time of express trains between the two cities.

In brief, the railroad company's plan seems to be to build new tracks for the use of express trains from a point north of Lansdowne in Baltimore County to a point near Hanover in Howard County. The new link will be about six miles long and will eliminate relay and the long curve at that place, likewise, the big curve in the vicinity of Lansdowne. It has not been stated how soon this work will be undertaken.

Santa Fe to Build Cut-Off.—The Santa Fe will build a cut-off through Oklahoma and Texas to connect its northern division with the gulf system. It will run between Long View and Tulsa, Okla., via Paris, Tex. About 350 miles of track will be built. The line is of importance because it means the establishment of a new north and south line of Santa Fe extending from Kansas City and northern points on its system, to the gulf coast, with branches into Louisiana and the timbered territory of east Texas.

The Santa Fe now has a branch line from Kirbyville, Tex., to Oakdale, La., and it is said that this is to be extended to New Orleans. This, with the new cut-off referred to, will give the Santa Fe a direct route between northern points and New Orleans. The Long View Division now runs to Port Bolivar, across the bay from Galveston. This line passes through Beaumont. From Silsbee the Santa Fe has a branch running to Sommerville, the latter place being on the present north and south trunk line of the gulf division. The proposed cut-off will shorten the distance between Chicago and the gulf, 150 miles via the Santa Fe.

NEW ROADS

New Texas Road.—The charter of the Dallas, Corsicana and Palestine Railroad Company has been filed at Austin. The company has a capital stock of $400,000. Its purpose is to construct a railroad between Palestine and Corsicana, and to ultimately extend the line from Palestine to Dallas. It is stated that S. W. Fordyce, of St. Louis and associates are the financial backers of the project. The incorporators named in the charter are: G. J. Heflin, J. A. Thompson, of Corsicana; Tucker Royal, C. Roe Hall, C. W. Banks, W. B. Flannigan, of Palestine; P. D. C. Ball, of St. Louis; L. E. Mitchell, of Neosho, Mo.; Kelly Brent and T. T. Crittenden, Jr., of Kansas City. The company has its principal office at this place.

New Railroad for Tennessee.—That middle Tennessee is to have a new railroad, opening up a vast field for timber and mineral development and an attractive agricultural section for immigrants, is the announcement made at the Industrial Bureau in the authorized statement that surveys have been completed for grading the roadbed of the Tennessee Valley Iron & Railroad Co., which proposes to construct with the co-operation of the Louisville & Nashville, a new line connecting Iron City, in Lawrence County with McGlamery's Stand in Wayne County. That Nashville will be the headquarters of this new road is an equally interesting and important announcement by the projectors of the enterprise.

It is further proposed that in a year or so, provided the proper encouragement is given the enterprise, to extend the road double the original distance contemplated, making it continue 20 miles farther to Martin's Mills, or a total of 40 miles. The leading spirit of the new movement is W. W. Collin, of Pittsburgh, who has been in Nashville for some time consulting with the Industrial Bureau and other interests hopeful for the success of the enterprise.

New Kansas-Nebraska Road.—The Anthony & Northern Railway has been incorporated to build a line from Anthony, Kan., to Hastings, Neb., 275 miles, with authority to build through Harper, Barber, Pratt, Stafford, Pawnee, Rush, Ellis, Rook and Phillips counties.

New Missouri Line.—The Nevada, Lebanon and Eastern Railway, with a capital of $1,000,000,

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has procured a Missouri charter to build a line about one hundred miles long, connecting the county seats of Vernon, Cedar, Polk, Dallas and Laclede counties.

Reincorporation of the Lake Erie and Youngstown.—The Lake Erie and Youngstown Railroad has been reincorporated at Columbus, Ohio, with $300,000 capital. Argument has been made before the State Public Service Commission to turn over the $300,000 stock of the old company in return for the right of way and other property. An application for permission to increase the capital to $4,700,000 was also made. This road is to connect Connaut and Youngstown.

LAND AND INDUSTRIAL.

Beef Producers' Special.—The Iowa Beef Producers' Association in conjunction with the Chicago & Northwestern Railway ran a special "beef cattle train" across the State of Iowa during the third week of December. A number of well-known cattle raisers were aboard the train and delivered lectures on Ensilage Feeding and the Influence of Beef Production on Farm Fertilizing.

Enlarging Land and Industrial Work on Southern Railway.—The Southern Railway Company has enlarged the work of its Land and Industrial Department in the South by opening three new offices to be located at Birmingham, Ala., and Knoxville and Chattanooga, Tenn. These new offices are established in harmony with the policy of the Southern Railway to cover just as fully as possible the development of the agricultural and manufacturing and other interests in its territory.

Efforts to Attract Immigrants to the Northwest.—Three Milwaukee railway exhibit cars will traverse Minnesota, Iowa, Missouri, Wisconsin, Illinois and Indiana during the next six months. The object is to attract immigration into Washington, Montana and the Dakotas ahead of the opening of the Panama Canal, through which European immigrants will be pouring into coast States within one year. That Washingtonians may see the exhibits sent east, one exhibit car is now touring Washington, going thence through Montana cities to St. Paul. For three months, beginning January 1st, it will tour the lines of the Minneapolis and St. Louis Railway in Minnesota, Iowa and Missouri. Thousands have visited the car at Tacoma and Seattle. The exhibits comprise grains, grasses, vegetables, fruits and berries of the Dakotas, Montana and Washington.

Helping the Fruit Growers of the Northwest.—With the advice and help of James J. Hill, the Wenatchee Fruit Growers' Association this fall developed a plan of eliminating middlemen selling apples in carload lots direct to retailers, thereby providing a stable market with better prices to growers. The father of the plan is W. T. Clark, president of the association. Mr. Hill, at St. Paul, heard this plan, suggested modifications and gave Mr. Clark letters to leading bankers in Chicago and other cities with an urgent request that they aid in every way possible. At Chicago, Mr. Clark obtained letters to other bankers; each selected banker in large cities was asked to name one reliable wholesaler of fruits or groceries. In every instance the local bank agreed to advance money to this local agent. Twenty such agents in twenty Eastern cities agreed to handle a specified number of carloads aggregating 1,700 carloads owned by the Wenatchee Association. President Clark believes twice as many carloads could have been handled. Storage arrangements were made at St. Louis, Kansas City and Duluth and carload deliveries may be made anywhere in the United States on one day's notice direct from cold storage on the through rate from Wenatchee with storage-in-transit privilege.

Canadian Pacific Lines Held for Actual Settlers.—J. S. Dennis, assistant to the president of the Canadian Pacific Railroad and head of the Department of Natural Resources made an important announcement recently in respect to the future policy of the Canadian Pacific Railroad in connection with the development of the unsold land in the West, of which the railroad company has still 7,000,000 acres ready for the settler. The Canadian Pacific has definitely decided not to sell any more land to speculators, but will offer it to bona fide settlers from North America, the British Isles and Northern Europe.

By the new terms which the company has decided to offer the great tracts of fertile land which lie near or in close proximity to the company's lines in the West and within hail of established towns, settlers will have the privilege of paying the amount of the purchase price of the land in twenty years, instead of ten as heretofore. Furthermore, there will be an additional attraction in the form of a loan of $2,000 from the company, also payable in twenty years with interest at six per cent.

FOREIGN RAILWAYS.

Raising Funds for Chinese Railroads.—Sun Yat Sen, representing the Chinese government, is to shortly visit America for the purpose of raising one-third of a $600,000,000 fund for the construction of an elaborate system of railroads. One-third of this sum will be furnished by the Chinese government. Another third will be subscribed in China. Dr. Sun, in whose hands the foreign negotiations have been placed entirely, will try to raise the other $200,000,000 in America and Europe. The amount will be entirely independent of the $200,000,000 loan to China to be made by the bankers of the five leading powers.

National Ownership in Mexico.—An interesting statement in regard to the status of ownership of the National Railways of Mexico is made by Diario Official, which is the organ of the Federal Government. This statement is called forth by recent charges published in opposition newspapers of the country. The charges were: (1) That the Mexican government, in contracting the loan of $20,000,000 with the house of Speyer & Co., of New York, hypothecated all its stock of the National Railways of Mexico. (2) That in this loan Speyer & Co. paid over only $11,000,000, retaining $9,-

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000,000 to meet the indemnities which will be claimed for the damages caused by the revolutionists to the railways in general. (3) That, as a consequence of the foregoing, the government is on the point of losing control of the National Railways of Mexico, which it cost so much money and such hard work to acquire.

The answer of Diario Official to these charges follows: "The executive has not and could not have hypothecated the government's stock in the National Railways of Mexico, as the decree empowering it to negotiate the loan of $20,000,000 contained a clause expressly prohibiting it to furnish any guarantee involving the revenues, properties or securities of the nation. The government's shares in the National Railways of Mexico are deposited in the national treasury.

"The firm of Speyer & Co. paid over in full in cash the amount of the loan. In consequence there is no danger of the government losing control of the National Railways of Mexico nor could it pledge its shares in the company, for the reason that the law of December 26, 1906, authorizing the railway merger, expressly declares that the shares of bonds, assuring to the government a voting majority in the general meeting of the stockholders, cannot be alienated or in any manner encumbered without the explicit authorization of the Federal Congress."

To Raise British Railway Rates.—The British government has introduced a bill in Parliament, in redemption of the promise made last year, to allow railways to advance their freight rates and passenger fares, to a point which will recoup them for the advance made in wages. The bill will be supported by the government and it will undoubtedly become a law. The government found it impossible to present to parliament a comprehensive railway bill as had been proposed, but in order to keep its pledge it presented the one clause bill. The provisions of the bill are worth reproducing as an indication of the attitude of the British government toward railway corporations. The last advance in wages was practically forced on the English roads, in some such fashion as the advance of 1908 was forced on American lines. The bill provides:

1. Where on a complaint with respect to any increase (within the maximum) of any rate or charge under section one of the Railway and Canal Traffic Act, 1894, the railway company proves to the satisfaction of the Railway and Canal Commissioners—

(a) That there has been a rise in the cost of working the railway resulting from improvements made by the company since the nineteenth day of August, nineteen hundred and eleven in the conditions of employment of their staff; and

(b) That the whole of the particular increase of rates or charge of which complaint is made is part of an increase made for the purpose of meeting the said rise in the cost of working: and

(c) That the increase of rates or charges made for the purpose of meeting the rise in the cost of working is not, in the whole, greater than is reasonably required for the purpose; and

(d) That the proportion of the increase of rates or charges allotted to the particular traffic with respect to which the complaint is made is not unreasonable,

Commissioners shall treat the increase of charges as justified.

The railways will have the power under this bill to make a general increase in their rates to the extent of the increase in wages. How far they will go and how promptly they will take advantage of this legislation is not known, but the presumption is the railroads will shortly advance rates. The shippers are expected to object but under the bill reasonable advances are certain to take place.

The action of the British government is in strong contrast with the treatment American railways received from those in authority. Our roads had, in one or two cases at least, arranged with their men, five years ago for a reduction in wages, but this was upset summarily by Washington, and our railroads have never to this day, been allowed to make a general increase in rates to compensate them for what they insisted was an unwarranted advance in wages.

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Philadelphia, December 18, 1912.

The Board of Directors of the Lehigh Valley Railroad Company have this day declared a semi-annual dividend of **five per cent** (or **$2.50 per share**) on its common stock to stockholders of record December 28, 1912, and a semi-annual dividend of **five per cent** (or **$2.50 per share**) on its preferred stock to stockholders of record December 28, 1912, both payable **January 11, 1913.**

Checks will be mailed. J. M. BAXTER, Treasurer.

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The Board of Directors has this day declared a semi-annual dividend of four per cent ($2.00 per share) upon the Capital Stock, payable on and after January 15, 1913, to stockholders as registered December 31, 1912. Checks will be mailed to stockholders who have filed permanent dividend orders.

JAMES F. FAHNESTOCK, Treasurer.

OFFICE OF THE UNITED GAS IMPROVEMENT COMPANY, N. W. Corner Broad and Arch Sts.

Philadelphia, Dec. 11, 1912.

The Directors have this day declared a quarterly dividend of two per cent ($1.00 per share), payable Jan. 15, 1913, to stockholders of record at the close of business Dec. 31, 1912. Checks will be mailed.

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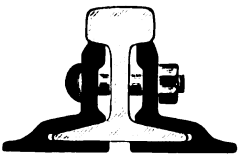

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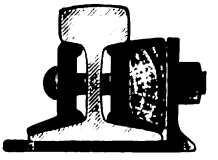

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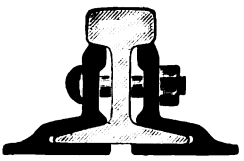

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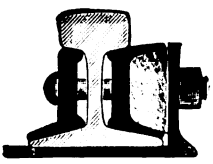

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VOLUME LVII ESTABLISHED 1856 NUMBER 2

A MONTHLY JOURNAL (successor to Railway World, a weekly publication) designed to present an accurate and comprehensive review of current events pertaining to Transportation, Commerce and Finance and to afford a medium for the development of a clearer understanding of the mutuality of interest which exists between those who employ and those who operate the railways.

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Railway World

VOL. LVII. FEBRUARY, 1913 No. 2

Important Developments in the Transportation Field

THE POSTOFFICE AND THE RAILROADS.

Keen interest is displayed in the results of the working of the Parcel Post. That the express companies have been hard hit by the new competition is known although officials of the companies are inclined to minimize the damage which has been done. There is no doubt, however, that even in the absence of official figures, the Parcel Post is doing an enormous business and that this business is rapidly increasing. It is altogether too soon to pass final judgment upon the results of the competition between the express companies and the Postoffice Department. That the Department will have a large fight to maintain its present advantage is, however, already clear. Certain points of advantage in favor of the express service are already apparent. The Government charges ten cents for insurance on values up to $50. It can work its employes only eight hours a day. The Department is to some extent, limited in discharging employes by civil service protection. Additional appropriations will be needed to increase the force sufficiently to handle the increased business. There is, also, difficulty in preparing packages for easy and prompt inspection, and finally, there is the disadvantage of compelling patrons to wait in line to get packages weighed and to buy stamps.

The express companies are also planning to vigorously compete with the Postoffice. Mr. C. R. Graham, Traffic Manager of the Wells Fargo Company, has announced that his company will underake competition, national in scope, with the federal Parcel Post, as soon as plans on which the company has been working for the last four years can be put into operation. This competition will be mainly on the long haul and will have special regard to perishable foodstuffs.

Meanwhile the railroads have not ceased their efforts to obtain justice at the hands of Congress, which by the Parcel Post law, has, on the one hand, reduced their revenues, and on the other, increased their expenses. It is estimated that the operation of the Parcel Post will cause the railroads a loss of $54,000,000. This loss comes in various forms. A large amount of light express matter, up to eleven pound packages, is being sent by Parcel Post. In handling this matter by express 50 per cent of the cost goes to the railroad, and the same amount to the express company. When this matter is transferred to the mail department, the railroads will have to handle it free of charge until the expiration of their contracts. Contracts are made by the Postoffice Department every four years, based on the volume

W. W. BALDWIN, Vice-President of the Burlington.

W. W. ATTERBURY, Vice-President, Pennsylvania R. R.

W. A. WORTHINGTON, Asst. Dir. Maint. and Oper. Southern Pacific.

RALPH PETERS, President Long Island Railroad.

FOUR MEMBERS OF THE RAILWAY MAIL PAY COMMITTEE.

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of mail handled during a period of three months in which the mail is weighed and a record is kept. The railroads are paid for the next four years on the basis of $20 a ton per mile per year. In New England the weighing has already been done, so for four years the railroads in that section must handle all of this additional matter free of charge unless some special provision is made. Some districts have three years remaining and the fourth district one and one-half years.

The railroads have taken advantage of this opportunity to open the whole question of the basis of payment for mail carriage. Mr. Jonathan Bourne, Jr., chairman of the Senate Committee on Postoffice and Post Roads, in September addressed a letter to the chairman of the Railroads' Committee on Mail Pay, asking certain questions bearing on the subject of mail pay to common carriers. Reference to these questions and the answers given by the railroads, have been issued by the Committee on Mail Pay. The following is an extract from a letter from Ralph Peters, president of the Long Island Railroad Company and chairman of the committee, to Senator Bourne:

"Q. Do you deem the present plan of compensation an equitable one as between the Government and the railroads? If not, in what respects and as to what classes of railroads is it inequitable?

"A. The existing law has never worked to the advantage of the Government, but has failed to do justice to the railways by reason of infrequent weighing; absence of pay for nearly 40 per cent of the space occupied as traveling post offices; the performance, without pay, of side and terminal messenger service, and the unjustifiable reduction in pay by the Act of Congress dated March 2, 1907, supplemented by Order No. 412 of the Postmaster General changing the divisor.

"The present law is based upon correct principles, but should be so amended as to provide—

"(a) For the repeal of the Act of March 2, 1907.

"Notwithstanding the large increase in every other item connected with the administration of the Postoffice Department, the railroads' pay has been singled out as the one element in these operations for concentration of economies. This too, in the face of the fact that the operating expenses of the railroads have been greatly augmented by the requirements of the law with reference to steel equipment, and a general increase in cost characteristic of all business operations.

"(b) For annual weighings, and a definite and just method for ascertaining daily average weights.

"Under the quadrennial weighing all increased weights of mail during the next succeeding four years is carried by the railroads without any compensation whatever, which is manifestly unfair.

"The railroads must provide car space and facilities for the maximum weight offered at any time, yet they are paid only for the average weight carried. The Postmaster General's order covering the divisor has unfairly reduced this average.

"This provision is essentially necessary in view of the bill establishing the Parcel Post, effective January 1, 1913, which will result in taking from the express service traffic for which the railroad companies now receive compensation and transferring it to the mail service; the bill referred to containing no provision for payment to the railroad companies for the increased tonnage to be handled in mail cars, although such provision was made for the star routes and the city wagon service.

"(c) For pay for apartment cars on some basis that will compensate for the service.

"That the Postmaster General has himself recognized the justice of such a change, is indicated in the following quotation from page 3 of House Document No. 105:

"'* * * * an additional amount may be allowed for railway postoffice cars when the space for distribution purposes occupies forty feet or more of the car length. No additional compensation is allowed for space for distribution purposes occupying less than forty feet of the car length. This distinction is a purely arbitrary one and without any logical reason for its existence.'

"(d) For a fair allowance to the railroads for the side and terminal messenger service which they perform for the Postoffice Department, according to the value of this service to the Postoffice Department.

"The necessity for this is also emphasized by the establishment of the Parcel Post which will undoubtedly add greatly to the expense of the service.

"(e) That all rates of pay should be definite and not subject to the discretion of the officers of the Postoffice Department.

"Other inequities exist under the present law, but are due to the administrative methods rather than to the law itself."

ARBITRATION IN LABOR SETTLEMENTS.

The firemen in the Trunk Line territory are not making much progress in the settlement of their difficulties with their employers. The managers' committee suggested arbitration of the differences between the parties along the lines of the engineers' arbitration. This was, however, rejected by the firemen, whose leaders have ordered a strike vote after having invoked the mediation of the Erdman Act. This dispute is taking the usual course, including negotiation failure, contest over mediation and arbitration, strike vote. The main difference between the parties concerns the form of arbitration. The firemen oppose a board of outsiders. They want the controversy settled by agreement between their own representatives and representatives of the railroads, with an arbitrator called in only in case of disagreement. In

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W. S. CARTER,
President, Brotherhood of Locomotive Firemen and Enginemen.

ELISHA LEE,
Asst. to General Manager, Pennsylvania R. R.

CHARLES P. NEILL,
Commissioner of Labor.

MARTIN A. KNAPP,
Presiding Judge, Commerce Court.

FOUR MEN PROMINENT DURING JANUARY IN THE FIREMEN'S WAGE CONTROVERSY.

the meantime, the trainmen are expected to bring forward their demands for higher wages.

The suggestion developed in the report of the board which arbitrated the engineers' demands, that a method of compulsory arbitration should be employed, is not meeting with general favor. *Financial America* has conducted a symposium among prominent railroad men, public officers, officials of labor organizations, and officials of the National Civic Federation, which shows clearly that the proposal for compulsory arbitration will meet with little support, even in some quarters where support might have been expected. For example, Mr. L. E. Johnson, President of the Norfolk and Western, says:

"Compulsory arbitration is not consistent with our form of government. A commission, however, formed by the Government in a proper and judicious manner with a reasonable amount of power, would practically make arbitration compulsory, as the public opinion would be so strong against either side that refused to accept the aid of such a commission to settle controversies that they would lose their case before it was begun."

On the other hand, President Brown of the New York Central, and President Underwood, of the Erie, favor the principle of compulsory arbitration. The most interesting letter received in response to the circular, is by Mr. Ralph N. Easly, chairman of the Executive Council of the Federation. Mr. Easly says, among other forcible comments:

"I am opposed to compulsory arbitration on general principles. Without going into the ethical or abstract side of the question, I am opposed to it for the reason that it is an impracticable proposition as well as constitutionally impossible under our present form of government. It has failed in every country where it has been tried, for the simple reason that you cannot make a man work against his will and in industrial plants you cannot make an employer employ against his will. In the case of railroads and other public utilities you cannot make the workmen work against their will but you can, under the terms of its franchise, make the corporation continue service whether it so wills or not, in which case a compulsory law would be a jug-handled proposition and therefore manifestly unfair.

"In New Zealand, where it first had its trial, the labor unions are withdrawing from the plan. In Australia, where they had a strike of 12,000 abattoir workers, the test showed that the compulsory feature was worthless. The men refused to accept the award of the arbitration board and under the law, were fined; they refused to pay the fines and then, under the law, they were headed for jail, but they never found it.

"In Canada, the arbitration law contains a modified compulsory feature, such as a provision that on railroads and public utilities (which were made to include mining), a strike or lockout could not take place until after thirty days' notice. They soon had a test in the form of a strike of 15,000 miners, who struck without giving notice. The men were fined, the fine was not paid, and they were facing imprisonment as in Australia. However, Canada did what Australia did—it simply 'ducked.'

"In a strike last year on the Grand Trunk lines in Canada, it was a railroad that refused to accept the award, and while it was compelled under its franchise to keep its road running, it employed other men and let the strikers go.

"To attempt to force men to work against their will in this country would involve a change in the Federal Constitution (and in every State Constitution) which provides that 'neither slavery nor involuntary servitude * * * * shall exist within the United States.'"

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As was expected, the attitude of the leaders of organized labor is, without exception hostile to the application of the principle of compulsory arbitration. Thus Mr. W. G. Lee, president of the Grand Lodge of Brotherhood of Railroad Trainmen, says:

"I do not agree that compulsory arbitration of industrial disputes affecting public utility property is either practicable or desirable. In the first place, the employer retains the right, and he will retain it, to employ whom he desires. The employe equally retains the right to give or withhold service at will. To enforce employes of railway companies to give service at wages and conditions that are unsatisfactory would be taking away from them their right to give or withhold service, which is a rather serious proposition when it is considered that the application of compulsory arbitration is alone considered as applicable to railway employes engaged in interstate service."

and Mr. R. L. Reeves, secretary of the Amalgamated Association of Street and Electric Employes of America, characterizes the proposal as follows:

"It would be destructive to democratic organism of society to legislate to compel employes of a private corporation or individual to arbitrate. The employe has no contract with the Government. A locomotive engineer has no contract with the Government. A motorman has no contract with a city. He is not employed by a city. He is employed by the corporation to which the city has conveyed the right of operation of cars under certain agreement called a franchise. That agreement cannot in any way bind a third party, the employe, but public opinion would support the principle of arbitration sufficiently strong to enforce its observance by employes and most strikes would be averted by such an arrangement."

The necessity for compulsory arbitration is based upon the refusal of organized labor to submit its differences with its employers to voluntary arbitration. So long as voluntary arbitration is possible, and in the railway field it is still generally employed, compulsory arbitration is unnecessary.

The leaders of railway labor in taking, as they do, such a pronounced stand against compulsory arbitration, by implication commit themselves to the method of voluntary arbitration. There is every reason to believe that the threat of a general railway strike, even when strike votes are taken, will not prove seriously alarming. Public opinion would not tolerate this method of settling railroad disputes, and without the support of the public, the cause of any large body of working men, engaged in a contest with their employers, is hopeless. It is a safe conclusion that arbitration between railway employers and employes is practically a settled policy in the United States, even though it may receive an occasional set-back.

Reverting to the present difficulty between the Eastern roads and their firemen, the following official statement issued on January 27 by the roads involved is of interest:

"Notwithstanding the offer of the fifty-four railroads in the Eastern section of the country to grant certain increases in wages or to arbitrate their differences with the firemen, the Conference Committee of Managers received no intimation that the firemen were recalling their strike ballot.

"The men are continuing their vote to determine whether or not to strike. The railroads concede that the vote will be favorable to striking.

"A strike means that practically every railroad east of the Mississippi and north of Virginia will be tied up.

"In their instructions to the various lodges, sent out by the Firemen's Committee to all of the branches of the organization, there is this paragraph:

"'Under no circumstances should any person voting be told that "there is no danger of a strike," for it is expected that every man will vote just as he intends to act. If he does not expect to leave the service of the company, if necessary, he should not deceive the officers of the Brotherhood by voting Yes.'

"The railroads stand prepared to grant certain increases; they agree that the firemen deserve adjustments in their wages. Their duties are difficult and their claims merit attention. But the men are taking a strike ballot upon a proposition to demand increased pay amounting to $9,600,000 annually, or 35 per cent of the total amount now paid to firemen in this territory.

"This amount, the railroads contend, is neither warranted by conditions, nor within the power of the companies to pay, having due regard to their other obligations.

"The Eastern railroads insist that their differences with the firemen shall be arbitrated in such a way that the interests of the public, as well as the men and the railroads shall be guarded.

"The form of arbitration followed in the engineers' case protected the public, the employes, and the railroads.

"At a recent conference between the firemen's committee and the railroad managers, President W. S. Carter, of the Firemen, used this language:

"'I speak the truth when I say that railroad employes are anxious that our little private troubles should not result in injury to both of us.

"'This public that you are talking about sometimes had best not know our troubles.'

"'If,' added Mr. Carter, 'there is anything in the world we absolutely refuse to do, it is to go through with what the engineers went through, which was practically a fiasco.',

"The so-called 'fiasco' Mr. Carter refers to was an arbitration before a board composed of Oscar S. Straus, of New York; Charles R. Van Hise, of Madison, Wisconsin; Frederick N. Jud-

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son, of St. Louis; Albert Shaw, of New York; Otto M. Eidlitz, of New York; Daniel Willard, President of the Baltimore and Ohio Railroad, and P. H. Morrissey, former grand master of the Brotherhood of Railroad Trainmen. This board was appointed bv Chief Justice White of the United States Supreme Court; M. A. Knapp, Presiding Judge of the Commerce Court, and Charles P. Neill, United States Commissioner of Labor."

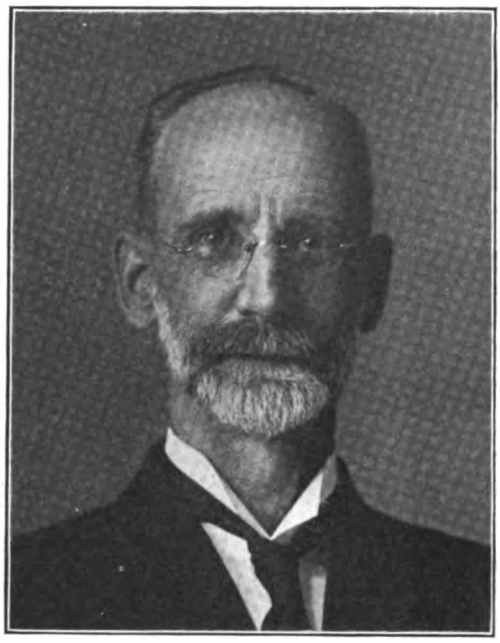
THE PREVENTION OF RAILROAD ACCIDENTS.

Interstate Commerce Commissioner C. C. McChord, in the current number of the *Railroad Trainman,* gives an interesting and comprehensive review of the work of the federal government in the prevention of railroad accidents, and the effect of the measures which have been taken. The reduction in the number of railroad casualties is rightly regarded as one of the most serious national problems now awaiting solution. As Mr. McChord shows, during the twenty-four years covered by the statistics of the Interstate Commerce Commission, 188,037 persons have been killed, and 1,395,618 persons injured on American railroads. Reduced to lowest terms, this means that an average of one person every seven minutes has been killed or injured, and as Mr. McChord says:

"It is pertinent to inquire how much of this fearful record of slaughter is due to the unavoidable risk of the industry, and how much to causes that can be eliminated, as means for the prevention of accidents must obviously be directed to the latter causes."

The figures which he presents show that the railroad responsibility for these accidents by no means corresponds with the total number of casualties. Taking a 20-year period, 1890 to 1909, out of 163,171 persons killed, and 1,190,025 injured, more than 66 per cent of the total number of killed were classified as "other persons" and of these other persons more than 85 per cent were killed while trespassing on the railroads. During the 24-year period more than 53 per cent of the whole number of persons killed on railroads were trespassers.

A determined agitation has, for a long time been in progress, to compel the railroads to elevate their tracks, with a view to preventing accidents of the kind mentioned. The highway crossing accidents are, however, few compared with those occurring at other points along the track. During the five-year period, 1904 to 1909, 4,261 persons were killed at highway crossings as



JAMES O. FAGAN.

Railway signalman on the Boston and Maine, whose recent writings on Methods to Promote Greater Safety in Railway Operations have been widely quoted in the press.

compared with 17,861 persons killed at other points along the track. More than half of the fatal accidents of this country occur through trespassing, and the unfairness of blaming the railroads for these accidents is glaringly apparent. It is here that the most fruitful field for reform in the direction of greater safety lies. Public opinion must be aroused to the point of co-operating with the railroads in keeping people off their tracks.

An illustration of the difficulty of protecting railroad property from trespass is seen in Chicago, where an ordinance has been passed, making trespassing a misdemeanor. In spite of the fact that the railroads maintain their own police, it has been found impossible to effectively enforce this order. During one period of three months four companies reported a total of 330 arrests of persons caught in the act of trespassing on the tracks. Less than one-fifth of these, however, were punished. There are only a half dozen states which have legislated upon this subject.

When we turn to the question of prevention of accidents to employes and passengers, we enter a field where public opinion has, for a long time, been aroused and alert, and where legislation and administration have employed their powers to the full-

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est extent. Commissioner McChord refers to the Safety Appliance Act, with its successive amendments, and claims a great reduction in the number of fatalities as a result of enforcement. In the year 1893, for example, the number of employes killed in coupling accidents was 433, and the number injured was 11,277. The total equipment in that year was 1.3 millions, with but three-tenths million equipped with automatic couplers. In 1911, with 2.4 millions equipment, all of which had automatic couplers, 209 employes were killed, and 2,966 injured.

During the five-year period, 1907 to 1911, collisions and derailments were responsible for 4,163 deaths, and 63,002 injuries. The main cause of these accidents, Commissioner McChord finds, in "the weakness of personal equation in railroading, showing that by far the greater number of these harrowing train accidents were due to human error. The bulletins show that errors in the operation of the train order system are frequent and fatal. Such errors are all of a kind. Dispatchers give wrong orders, or fail to give orders where they are required; operators fail to copy orders correctly, or do not deliver orders that should be delivered; conductors and enginemen misread, misinterpret, overlook or forget orders."

The imperfections in the train order system have led to agitation for the compulsory use of the block system, although this has not yet been enacted into law. Commissioner McChord does not believe that the universal introduction of the block system would ensure immunity from collision since its danger warnings must be observed and obeyed by train operatives who frequently make mistakes. He recommends, in lieu of the block system, the general introduction of some method of automatic train control. The Commissioner refers, with approval, to the operation of the law of March 4, 1910, limiting the hours of trainmen and telegraph operators. It is impossible to say whether the enforcement of this law has resulted in any increase of safety in train operation, but the Commissioner claims that the law has been a great benefit to employes.

Commissioner McChord refers, with approval, to the information elicited under the Commission's authority to investigate collisions, derailments, and other accidents resulting in injuries to personal property.

We come now to the dominating cause of accidents which, according to Commissioner McChord, is as follows:

"Rules have been violated with impunity, with the full knowledge of officials whose duty it was to enforce them, and disciplinary measures have been applied only in cases where disaster has followed disobedience. The crying need in railway service to-day is a sensible and entirely workable code of rules governing the operation of trains; a code that can be obeyed under all conditions of operation; a code the primary purpose of which shall be the prevention of accidents rather than the avoidance of legal responsibility for their occurrence."

In his opinion, many of these regulations are unworkable, and he claims that employes are encouraged to disregard them.

On the other hand, railway officials assert, and the results of certain recent accidents abundantly bear out their contention, that it is extremely difficult to enforce discipline upon their employes, who can always fall back upon the authority of their union to delay punishment or perhaps avoid it altogether. As Mr. James O. Fagan, in an article recently published in the New York *Times*, points out, the engineer who recently ran by his signals near Westport on the New Haven road, and wrecked his train, had been kept in place by union influences, after a record of gross infringements of discipline, and he strongly endorses, in the same article, the proposal that men having to do with the operation of trains be licensed by the federal government as steamboat captains are licensed. "That would keep the head of a union grievance committee from shielding an engineer who would run by his signals; his license would be revoked, as a pilot's license would be revoked who ran his steamer on the rocks."

Returning to Commissioner McChord's article, he calls attention to the increasing number of broken rails, as a cause of accidents, and urges the necessity of an improvement in specifications of rail manufacturers. He gives his unqalified approval to the steel car which is quite rapidly superseding the wooden car on all roads, and he speaks with approval of the law of February 17, 1911, providing for federal inspection of locomotive boilers.

As Mr. McChord concludes, however, laws and regulations are useless without the active and enthusiastic co-operation of railway officials and employes in reducing railway fatalities. There are many signs of an awakening of this co-operative spirit. Safety committees, are now a feature of the operation of many roads, and these committees are "bound to be an important factor in reawakening in employes that old-time feeling of personal interest and pride in the

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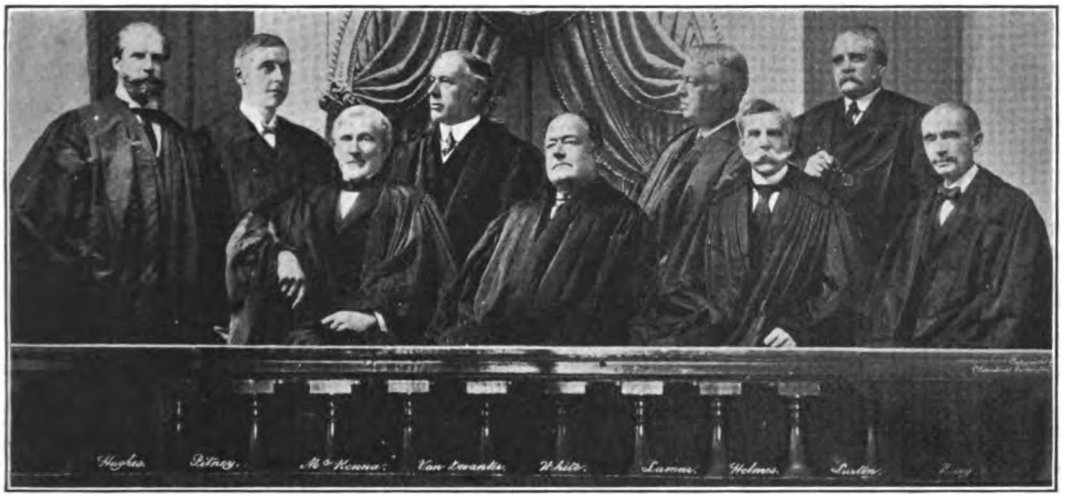

THE UNITED STATES SUPREME COURT, WHOSE RECENT RULINGS ARE HAVING AN IMPORTANT INFLUENCE UPON BUSINESS METHODS OF LARGE CORPORATIONS.

record of 'our road' that has been so largely dissipated by modern railroad development."

BUSINESS AND THE COURTS.

There has never been a time when the regulative activities of the federal government have more seriously concerned the business community. The scope of federal and state regulation has now so far expanded that there is hardly a day passes without some decision of a court or commission vitally affecting the welfare of great industries.

During the present month, for example, the Supreme Court has decided that James A. Patten and others, charged with violation of the Sherman anti-trust law, in running a so-called "corner" must stand trial in the lower courts, and in this decision settles the question that a corner of any commodity is a restraint of interstate commerce, and a violation of the Sherman anti-trust law. In his opinion, Justice Vandevanter declared that a corner, which, of course, is the buying up of the available supply of a particular commodity, in a particular market, operates "as a forbidden restraint, for it also operates to thwart the usual operation of the laws of supply and demand, withdraws the commodity from the normal current of trade, enhances prices and produces practically the same evils as the suppression of competition."

The United States Circuit Court for the Southern District of New York, on January 9th, granted the petition of the Government for a permanent injunction against certain retail lumbermen's associations operating in the Eastern states, their officers, directors, members and delegates, by which the defendants were practically enjoined from attempting to prevent any party or parties from buying or selling and transferring lumber in the District of Columbia. The effect of these associations has been to prevent wholesalers from supplying consumers direct by circulating official reports which contained the names of such wholesalers. The activities of the central bodies of this Association were confined to the dissemination of the information concerning the names of the offending wholesalers. There was no official requirement that they should refrain from dealing with any wholesalers whose names were on the list, but the court said "the record indicates that no such discipline is necessary."

In Ohio, the Circuit Court on December 30th handed down a decision in the case of the Government against the Lake Shore and Michigan Southern and certain other railroads, declaring the companies guilty of restraint of trade in violation of the Sherman Act. The decision makes inoperative the sale of 100 acres of coal land, together with the Sunday Creek Coal Company, together with the stock and other railroads by which the alleged monopoly was formed. The decision further recites that the joint owner-

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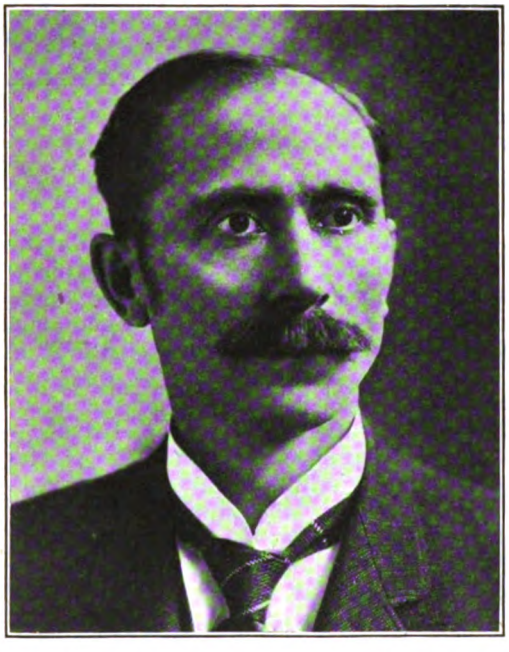
ship of the Kanawha and Michigan and the Lake Shore and Michigan Southern be terminated.

It is announced that the Interstate Commerce Commission intends to follow up the indictments returned against the three railroads by the federal court jury in Buffalo, on January 14, with other prosecutions. Extensive rebating is charged in the indictments already presented. The defendants are the Erie, the Lehigh Valley and the New York Central and Hudson River. The maximum penalty, aggregating $3,240,000 is possible if the roads are convicted on every



SENATOR J. L. BRISTOW OF KANSAS.
A Representative of the Radical Wing of the United States Senate.

count. Fifty-one counts are contained in the indictment of the Erie, eleven in the indictment of the Lehigh Valley, and fifty in the indictment of the New York Central. The alleged methods of granting rebates were in the failure to collect damage charges, and leasing, for an income, some of the lands used for coal yards.

While the courts are active in enforcing the Sherman law, Congress continues to investigate in various lines. The Money Trust investigation has been continued during the month, without, however, eliciting anything with which the financial world was not already reasonably familiar. The investigations of the "shipping trust" are referred to on page 97.

BUSINESS BY REGULATION.

Senator Bristow, who represents as well as any member of Congress, the extreme radical attitude toward corporations, introduced, early in January in the Senate, a bill which is recognized as embodying the plan of the progressive Republicans for regulating corporations doing interstate business. The bill provides for an industrial commission which should have authority over industrial corporations engaged in interstate commerce, which is equivalent to the authority of the Interstate Commerce Commission over transportation companies. The power of the proposed commission would involve the investigation of the financial condition, business operation and management of companies subject to this jurisdiction and would contain a clause requiring all of them to bring their capital stock and debt down to a figure not more than 10 per cent greater than the fair and reasonable value of their property. Three years are allowed for the elimination of water from industrial capitalization. Standard fees for promoters are established.

Section 15 declares that any contract or combination in restraint of trade shall be presumed to be unreasonable. In order to remedy abuses which the investigations of the commission may disclose, authority is given for the appointment of receivers to take possession of the property and operate it in the stead of the officers of the company who may be subject to prosecution. Congress is given supreme authority over members of the commission who can be removed at any time.

The demand for extreme regulation has never gone further than the provisions of this bill. There is not the least likelihood that it will be enacted into law, but it stands as the expression of the deliberate judgment of a large section of the American people toward corporations.

GROWING DEMAND FOR COMMERCE COURT.

On January 15th, by a vote of 33 to 20, the Senate adopted an amendment to the legislative, executive and judicial appropriation bill, lengthening the life of the Commerce Court until June 30th, next. Under existing laws the court would come to an end on March 4th, but Congress having failed to transfer the jurisdiction of the

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THE UNITED STATES COMMERCE COURT.

Reading from left to right the Judges are Martin A. Knapp, William H. Hunt, Julian W. Mack, John E. Carland, and Robert W. Archbald. Mr. Archbald is no longer a member of the Court.

court, and make arrangements for the disposal of cases then pending before it, the Senate decided to extend the life of the court to enable it to clear up its calendar. The bill will now go to a conference committee of the two Houses. While the Senate amendment gives the court but four months more of life, it will be left to President-elect Wilson to say whether the court shall be continued or not, and there is some reason to believe that the removal of Judge Archbald from that body and the arguments made by a number of attorneys interested in cases involving the interpretation of the interstate commerce law, will be effective in securing the continuance of what is a most useful tribunal. The opposition of the Commerce Court represents a concentration of the public hostility toward all courts, which found such abundant expression in the recent presidential campaign.

It is popularly assumed that the courts are controlled by the railroads, therefore, to concentrate railroad control upon a single court is to make that control omnipotent and to deprive the shipper of any opportunity before the law. The Commerce Court, moreover, it has been charged, has set itself up above the Interstate Commerce Commission, the administrative arm of the government, and has, in effect, constituted itself a second interstate commerce commission, thereby rendering the original commission largely impotent. It is, no doubt, this conviction, entertained by the members of the Interstate Commerce Commission, which has been largely responsible for the determined hostility shown by that body toward the Commerce Court.

It will, also, be remembered that a member of the Interstate Commerce Commission was directly responsible for bringing to the attention of representatives, the charges which have just led to the impeachment and conviction of Judge Archbald. Judge Archbald is now removed from the bench. The public desire for a victim has been satisfied, and the Supreme Court has itself materially curtailed the power which the Interstate Commerce Commission has assumed it could exercise under the Hepburn Act.

In a decision handed down on January 20th, the Supreme Court holds that the power lies in the federal courts to examine any record on which the Interstate Commerce Commission has made an order, affecting rates, and to determine, as a question of law, whether the evidence submitted to the Commission justified the order. This case was an appeal from a decision of the Commerce Court which issued an injunction restraining the enforcement of an order entered by the Interstate Commerce Commission annuling as "unfair, unreasonable and discriminatory" certain class rates made by the

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Louisville and Nashville Railroad Company over its lines between Louisville and Pensacola. The Supreme Court reversed the judgment of the Commerce Court and held that the order of the Commission was proper, but in so doing it outlined and greatly restricted the powers of the Commission.

The case was begun by the railroad in the Circuit Court which refused to grant a temporary injunction restraining the order of the Commission. Later the case was transferred to the Commerce Court where the railroad's attorney submitted to that court a record of the proceedings before the Commission, upon complaint of the New Orleans Board of Trade, to prove that there was no evidence to show that the rates complained of were actually unjust. The Commerce Court, Judge Archbald writing the opinion, held that the Commission's order was void because there was no material evidence to sustain it.

The argument advanced on behalf of the Commission, before the Supreme Court, was that the courts had no authority to review the evidence upon which the Commission based its decision, since to grant this power of review would be to substitute the court for the Interstate Commerce Commission and to nullify the action of the Commission. This was one of the principal arguments used in Congress to secure the legislation of the Commerce Court out of existence. The Supreme Court absolutely rejected this argument, and Justice Lamar, who delivered the opinion, holds that the Hepburn law, instead of making the Interstate Commerce Commission's order "conclusive against a direct attack," expressly declared that they may be suspended or set aside by a court of competent jurisdiction. Whether the order deprives the carrier of a constitutional or statutory right; whether the hearing was adequate or fair or whether for any reason the order is contrary to law—these are all matters within the scope of the judicial power. The Court says:

"Under the statute the carrier retains the primary right to make rates, but if after hearing they are shown to be unreasonable the Commission may set them aside and require the substitution of just for unjust charges. The Commission's right to act depends on the existence of this fact and if there was no evidence shown that the rates were unreasonable there was no jurisdiction to make the order.

"In a case like the present, the court will not review the Commission's conclusions of fact by passing upon the credibility of witnesses or conflicts in testimony, but the legal effect of evidence is a question of law. A finding without evidence is beyond the power of the Commission. An order based thereon is contrary and must in the language of the statute be set aside by a court of competent jurisdiction.

"A finding without evidence is arbitrary and baseless and if the Government's contention is correct it would mean that the Commission had a power possessed by no other officer, administrative body or tribunal under the Government. It would mean that where rights depended upon facts, the Commission could disregard all rules of evidence and capriciously make findings by administrative act. Such authority, however beneficently exercised in one case, could be injuriously exerted in another, is inconsistent with rational justice and comes under the Constitution's condemnation of all arbitrary exercises of power."

With the reasons for opposing the Commerce Court largely removed, the advocates of the continuance of that tribunal have now a chance to get themselves heard. The Senate Committee on Appropriations on January 6th granted a hearing to representatives of shippers' organizations who desire to continue the Commerce Court. Mr. B. A. Dean, of Auburn, N. Y., chairman of the legislative committee of the National Hay Association, said:

"Assuming that a court intermediate to the Supreme Court is necessary, my association believes that, in the determination of questions concerning transportation law, one special tribunal is preferable to several tribunals dealing with numerous and varying questions; this on the grounds of expediency, uniformity and promptness of decision, and economy.

"Since there must, under the Constitution, be provision for court review at the instance of defendants before the Interstate Commerce Commission of questions of law decided by it, we believe the right to such review should be mutual for the litigants; in other words, that the complainant before the Interstate Commerce Commission should have the same right of court review as the defendant, and further that appropriate legislation should be enacted conferring such jurisdiction."

A stronger argument in favor of the continuance of the Court was made by John B. Daish, an attorney of Washington, representing various shipping organizations, who said:

"The continuance of the Commerce Court is justified on at least three grounds in addition to those formerly alleged. It decides questions very promptly and one is not compelled to wait until the time limit of the order of the Commission has expired; the jurisdiction and power of the court has now been practically marked out by the Supreme Court and there will be little occasion for future controversy in this behalf; the court is a court of experience and far more competent to decide upon the intricate questions of the law relating to carriers than would be the District Courts which have before them matters of law, equity, admiralty, patents and a world of other jurisdiction.

"Shippers are interested in continuing the court because they want confided to a special transportation tribunal versed in the intricacies of trans-

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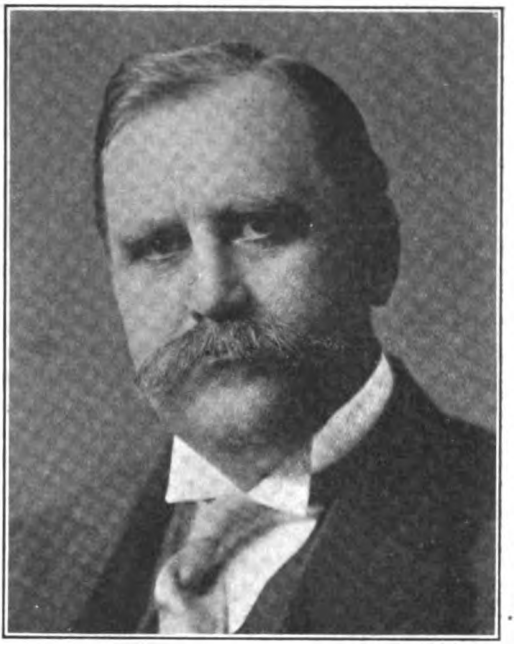
portation law, jurisdiction to review errors of law of the Commission when that body decides against them as well as when deciding for them. The present jurisdiction of the Commerce Court ought not be transferred to the Circuit Courts, because there is great difficulty in securing three judges under the expediting act. These judges are already busy and notwithstanding the expediting act, necessary delays result. Furthermore, where the same question is placed before different judges in different parts of the country the decisions lack uniformity."

Those who are familiar with the subject are unanimous in favoring the continuation of the Commerce Court. In the interpretation of such statutes as the interstate commerce law, which is national in scope, there is the greatest need of uniformity of decisions. Questions which concern the public in all parts of the United States should not be decided, one way in one district and another way in another district. Questions arising under the interstate commerce law, it must be remembered, go far beyond the rights or interests of individuals, affecting, on one hand, great railway systems with hundreds of thousands of creditors and stockholders, and on the other, the entire shipping and consuming public. The decisions of such questions must not only be uniform, but they must be accepted.

Under the late method of procedure, cases arising under the interstate commerce law were decided in the Circuit Courts, and by the present plan they will be heard in the District Courts, causing even a larger diffusion of interpretation and decision. The creation of the Commerce Court gave exclusive jurisdiction in cases arising under the interstate commerce law to one tribunal, thereby relieving the other federal courts from the burden of this class of litigation. When the court was organized in February, 1911, there was transferred to it, from the the various Circuit Courts, thirty-six cases which have not been tried, and which have been brought within the previous two years. Since that time fifty-two cases have been brought originally in the Commerce Court and the total number now pending in that court, remaining from the thirty-six previously brought, and adding the fifty-two brought within the past two years, is only eleven. From the standpoint of the shippers who are interested in the effective enforcement of the interstate commerce law, the concentration of judicial authority in one tribunal whose proceedings are attended with a greater measure of publicity than would be the case if this business were split up among the various District Courts, is a great advantage. The procedure is more extensive, a body has already been created which greatly accelerates the dispatch of business, and in spite of statements to the contrary, the weight of the Commerce Court decisions has been in favor of the shipper rather than the carrier.

The record of cases decided shows clearly that the Commerce Court has much more generally sustained the Interstate Commerce Commission than did the Circuit Court. The Commerce Court has granted preliminary injunctions in only seven cases and in several of these cases the Interstate Commerce Commission, itself, was divided.



GOVERNOR EUGENE FOSS OF MASSACHUSETTS.

GOVERNOR FOSS AND THE NEW ENGLAND RAILROADS.

In his third inaugural address, Governor Foss takes strong ground against what he styles the continuance of the railroad monopoly of Southern New England. He renews his recommendation for the dissolution of the Boston Railroad Holding Company, and calls attention to the fact that the leading issue of the last campaign was the control of the government of Massachusetts by the New Haven Railroad monopoly. He further calls attention to the decision of the United States Supreme Court in the Union Pacific and coal roads cases, which, he says, "makes it probable, and almost certain, that such an agreement of railroads to destroy or forestall competi-

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tion, is a violation of the anti-trust act." The Governor continues that the combination between the New Haven and Hartford and the Boston and Maine is prohibited by federal law, that its benefits to the people of Massachusetts are wholly illusory, that the service rendered by the New Haven and Hartford is far from satisfactory, since the main energies of the management are devoted to perfecting and retaining their monopoly rather than to serving the public, and that if the state does not assert its right and authority to control its railroad corporation, to compel them to render good service and to keep within the law, there is danger that potential state control will be replaced by actual federal control, which will deprive the people of Massachusetts of the right to regulate their own transportation system. The Governor goes even further, and practically endorses government ownership and operation of the railroads.

Meanwhile, public hostility toward President Mellen and the New Haven seems to be abated. The opinion is rapidly gaining ground among the thinking people of New England, that the attacks upon the New Haven and Hartford have been inspired by interested parties. One of the most influential papers in New England, which has never been distinguished for its loyalty to corporation interests, is the Boston *Transcript,* and the saner view of the anti-railroad agitation is voiced by the *Transcript* as follows:

"Those New Englanders who are pressing for a congressional investigation of railroad conditions in this section will not lack for assistance from interests which are avowedly hostile to the New England States. For example, nothing would better suit the railroads whose shipping port is New York than to see a prolonged investigation by a committee of Congress of New England railroads, the effect of which would certainly halt plans for New England railroad extensions and for Boston's port development by alarming sources of credit upon which is dependent the financing of such projects. Let us not forget that the influence long exercised by New England in both houses of Congress, to the great advantage of this section, has resulted in powerful combinations against us in business as well as in politics.

"Any committee of Congress appointed to investigate the New England railroad system is certain to include one or more congressmen from the West and South. Many of these members have been elected on a platform pledging war upon the protected industries of New England. Such an investigation will give them the opportunity they have long sought to pillory New England before the public, and New England as a whole cannot but feel the force of the blows aimed by such hands at our railroad system. These political investigators may start on the trail of the railroads but they will soon be gunning for all New England. It is difficult to see what possible good can come to New England from such an investigation. It is very easy to see the dangerous probabilities it threatens.

"If there is to be another investigation to determine how the deficiencies in our railroad system, from which the traveling public is daily, and in many instances justly complaining, are to be remedied, a conference of the New England governors could plan an investigation by New England experts in the interest of the New England States. The assistance of the Federal Government can be obtained through the Interstate Commerce Commission. The sooner these six States come to a fuller recognition of their community of interests the sooner will they co-operate to meet the outside competition that confronts them on every side by union from within. The new year would be a good time to call such a conference. Who will take the initiative?"

Some of the friends of the New Haven go so far as to say that the attacks upon the company have been due to the aggressive policy pursued by the New Haven in developing the port of Boston. What originally aroused the apprehension of these interests, it is declared, was the powers conferred upon the directors of the port of Boston to spend millions of dollars for the development of the water front, and the aggressive manner in which the directors of the port proceeded to carry out their duties.

Attention is also being directed to the benefit which the Boston and Maine has gained from the control by the New Haven. This view of the matter is voiced in an address by William J. Hobbs, vice-president of the Boston and Maine Railroad, at Malden, Mass., as follows:

"I have no patience with those men who, either through ignorance or malice, are maligning and persecuting Mr. Mellen, a man who by reason of his remarkable ability as a manager of railroads in New England, is in a class by himself, and who in my judgment stands head and shoulders over his associates.

"He has expended for improvements made and in progress in the short time he has been in charge, about $25,000,000 against $40,000,000 expended during the previous eight years.

"Great shops are under way at Billerica for repair of engines and cars at a cost of $2,500,000. New yards are being completed at Mechanicville, the great interchanging point with the Delaware and Hudson Railroad, which will cost more than $700,000 more and which, when completed, will relieve all congestion of freight traffic at that point. At Newport, Vt., where connection is made with the Canadian Pacific Railroad, extensive yards are being planned, expected to cost more than $300,000. Engine houses are being enlarged, water supplies and coaling plants improved, bridges rebuilt and a multitude of other improvements and enlargements made, and so the work goes on. Give him a chance, and withhold judgment until he approaches completion of his plans."

On the other hand, the people of New

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England feel that they have a real girevance against the Mellen regime, which has, as yet, been unable to bring up the standard of operating efficiency to the desired level. There is also a deep rooted antipathy to the domination of the entire transportation system of New England, land and water, benevolent though this despotism may be. If centralized control of transportation had by this time realized the great benefit which had been urged for it, and which, indeed, it may be conceded will eventually be derived from it, this antipathy to what is termed "one man domination" might not have been so effective. Mr. Mellen's plans have been magnificent. They have been inspired by loyalty to the interests of New England; they have not, however, as yet so clearly demonstrated their success as to win for their author that measure of popular support which is essential to their continuance.

That the administration of the New Haven realizes the necessity of modifying its plans in deference to public opinion, is seen in the statement by President Mellen, that unless the steamship holdings of the New Haven are authorized by the Interstate Commerce Commission, the company will sell these holdings in 1914. This sale, he stated, will be a bonafide transaction, by which the company will rid itself of every piece of steamship property except that used directly in connection with the railroad business. The steamship lines will still be operated in cooperation with the railroad, although independent of it.

SHIPPING TRUST INVESTIGATION.

This announcement of a surrender by the New Haven over its long standing control of New England coastwise commerce, is simultaneous with the publication of the report by Luther Conant, Jr., Commissioner of Corporations, which deals with the subject of railroad companies and steamship combinations. In practically all the coast waters of the country, the Commissioner says, railroad or steamship consolidation dominates water transportation. This control is especially striking on the Atlantic and Gulf coasts and on the Great Lakes.

"So far as the eastern part of the country is concerned," says Mr. Conant, "water lines have to a large extent become auxiliaries or subsidiaries of railroads. The Interstate Commerce Commission has by recent legislation secured a considerable increase in jurisdiction over joint rail-and-water traffic, particularly with respect to the establishment of joint rail-and-water rates and the equitable division of such rates between the carriers. If there is to be any successful attempt to increase competition in domestic water traffic, it seems certain that such joint-rate arrangements should be far more generally established than at present. Since joint through rates are almost invariably less than the sum of the local rates, a steamship line deprived of the advantage of a joint-rate arrangement with railroads on an equitable basis is practically unable to compete with a rival enjoying it."

The report says that twenty railroads control steam vessels and barges of 810,000 gross tonnage, engaged exclusively in domestic trade. Of these the tonnage of the New Haven is the largest, about 200,000 gross tons. The Union Pacific-Southern Pacific combination has more than 150,000 gross tons, then follow the Pennsylvania with 77,000, the New York Central with 50,000, and the Central of Georgia with 40,000. On the Great Lakes important passenger and package freight lines, it is declared, are owned by railroads. Several of the principal lake fleets, handling ore, coal and lumber, are under the control of large corporations. The Commissioner points out that there is competition on both coasts. On the Atlantic Coast, the Atlantic, Gulf and West Indies Steamship Lines, and the Eastern Steamship corporation, operate independently of the railroads; on the Great Lakes, in the local package freight traffic, there are a large number of independent water carriers, and on the Pacific Coast the Commissioner found several independent steamship lines. The Commissioner also calls attention to the fact that the railroads have driven out the steamship lines formerly operating on the Mississippi,—a fact explained by their lower rates and superior service, and that they control about 90 per cent of the private canals still in operation.

In line with the claims made by the Commissioner of Corporations are the revelations as yet confined to the prosecution before the House Merchant Marine Committee, which is investigating the subject of shipping combines. A large number of witnesses have testified that the ocean is in the grip of a monopoly. As one witness put it "the ocean is laid out like a set of blocks over the angles of which foreign owned vessels sail in well regulated streams," slighting the commerce of this country in favor of the country to which they belong. The consensus of testimony, thus far taken, has charged

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U. S. Representative Alexander
Chairman of the House Committee Investigating the So-called "Shipping Trust."

Luther Conant, Jr.,
Commissioner of Corporations.

that the plan by which this alleged monopoly has been established and maintained, is a system of discriminations and rebates, effected by means of pools, conferences and understandings between "regular shipping lines," by which they divide up the shipping trade of Europe and the United States with the Orient and South America, practically excluding all competition which they annihilate, whenever attempted, by an ingenious system of rebates.

One witness, representing the Pan American Mail Line, said that coffee shippers of Brazil are afraid to patronize an American line, lest they forfeit their contract with the conference lines, and lose their rebate, and that American exporters were charged from 40 to 50 per cent more to South America than are European lines. Mr. Joseph Purcell, of Hard and Rand, of New York, one of the largest importers of Brazilian coffee to the United States, testified that for shipping its coffee exclusively by the Lampert and Holt Line, the Price Line and the Hamburg-South Amerika Line, this concern was given a maximum rebate of 10 per cent. A variety of similar testimony, affecting not only the foreign trade, but the coastwise traffic, was brought out before the Committee.

In defense of the system of conference syndicates, it was urged that these arrangements have greatly helped commerce because they have put the steamship business on a profitable basis. Mr. Paul Gottheil, president of New York company of steamship agents and brokers, claimed that subtracting the depreciation on the cost of the ships at 5 per cent annually, out of $50,000,000 worth of vessels, none had in three years cleared on the average of over 4 per cent. Without a conference agreement in the South African trade, for example, he claimed, every fleet operating between New York and South Africa would have to number at least 25 ships, to make one call a month at ports and even would have to send practically every ship 7,000 miles in ballast back to New York because of a lack of cargo.

In spite of the large amount of testimony regarding certain features of which, by the way, witnesses who have testified in behalf of the present system, have confirmed, it is by no means certain that the so-called shipping trust is injurious to American commerce, that its profits are abnormal, or that there is any method by which these agreements can be broken up. The real reasons for the predominance of European countries in the trade of South America, lie far deeper than the surface of ocean transportation. This advantage of the European exporter is primarily based upon a more active and careful cultivation of foreign markets. There is no doubt that foreign steamship lines have favored their

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own exporters wherever they could do so, mainly, however, in granting them the advantage of regular sailings. In this work, in behalf of the commerce of their respective countries, foreign steamship lines have been powerfully assisted by the subsidy policies of their respective governments. There is much reason to doubt that competition in the shipping industry, a business which, left to its own devices, is far from profitable, can be restored by any legislation, or that even if it were restored, American exporters would gain any material advantage.

COASTWISE SHIPPING AND THE PANAMA CANAL.

The subject of the the provision in the control of coastwise commerce is intimately bound up with the larger question of the Panama Canal. Indeed, it is the provision in the Panama Canal bill exempting coastwise vessels from payment of tolls which is the ground on which Great Britain has based her opposition to the treaty. The exemption of American coastwise shipping, which already enjoys a monopoly of this traffic, is declared by Great Britain to be a violation of the terms of the Hay-Pauncefote treaty under which the canal was to be open on equal terms to the shippers of all nations. A strong protest has been made in and out of Congress, a protest ably voiced in a recent speech by Senator Root, against the United States' insistence upon her construction of the treaty and in favor of leaving the matters of difference between the two nations to the decision of The Hague tribunal. President Taft has also declared himself as unequivocally in favor of the arbitration of the question of the Canal tolls in event of the pending negotiations between the two countries failing to bring about a settlement.

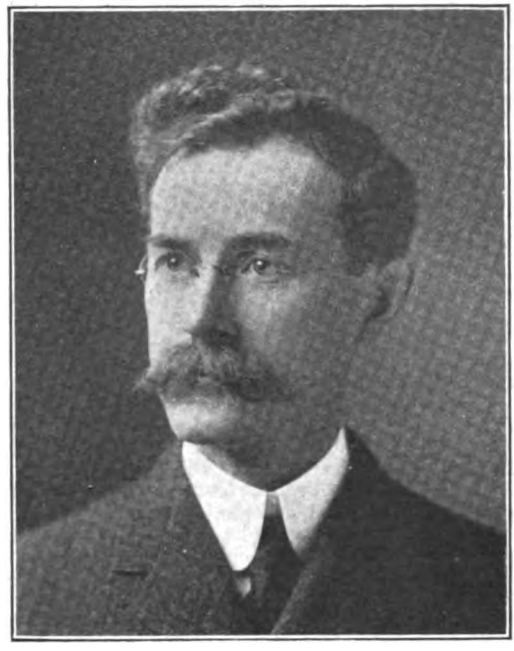
A new view of this question, which is based upon economical rather than ethical grounds, was presented by Professor Emory R. Johnson, Special Commissioner for the Panama Canal, on "Traffic and Tolls," before the Western Society of Engineers, in which he strongly declared against the "unwisdom of toll exemption for coastwise shipping." Professor Johnson, in this address, raises four questions, and answers them in order. The questions are as follows:

"Do you coastwise carriers need to be given a subsidy of nearly $20,000,000 during the next ten years?

"Will the general public—shippers and consumers—be benefited by this subsidy, i. e., will freight rates by coastwise lines or by rail lines be lower?

"Is this the best method of using public funds to aid the merchant marine?

"Are tolls upon all ships needed to make the canal self-supporting and not a burden upon the general taxpayers?"



EMORY R. JOHNSON,

Special United States Commissioner on Panama Traffic and Tolls, and Professor of Transportation and Commerce, University of Pennsylvania.

The answers are as follows:

"1. It must be evident to every impartial student of the question that it is not necessary to relieve coastwise shipping of canal tolls as long as foreign built ships are not allowed to engage in the domestic commerce of the United States. American ship owners have a monopoly of the coastwise trade. Our coastwise marine is now given sufficient aid and protection by our navigation laws.

"2. The sentiment in Congress and elsewhere in favor of relieving the coastwise shipping from the payment of Panama tolls seems to be due largely to the belief that if tolls are collected from the steamship lines the freight rates which they charge and the rates of the transcontinental railroads will be higher by the amount of the tolls, and the public will thus pay more in added freight rates than it will gain in tolls received. This argument, however, assumes an improbable adjustment of rail and water rates. The rates of the steamship lines and the railroads will not be higher if Panama tolls are collected from the coastwise line.

"3. The exemption of American coastwise shipping from the payment of Panama tolls is a poor kind of subsidy to our merchant marine. The money will go to our shipping that needs no aid, and not to our vessels that require assistance. The experience of Japan, Germany and even of Great Britain shows that the only effective ship subsidies are those paid to strong lines operated over routes deemed important to the Government

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granting the subsidy. To aid our merchant marine in such a way as to produce results, strong lines must be selected or created and given such support as they require to enable them to compete successfully with foreign steamship companies and grow stronger year by year; must concentrate its aid and strengthen the strong lines assisted. It has been suggested that it would be wise for the United States to pay back the Panama tolls collected from the owners of American ships engaged in our foreign trade through the Panama Canal. Such a subsidy, however, would be so small and so thinly distributed as to be ineffective; moreover, the repayment to ship owners of the Panama tolls collected from them would invite similar action by other nations to overcome the effect of our action. Such a subsidy would be one suggesting retaliatory action.

"The tolls upon merchant vessels have been fixed by the President at $1.20 per net ton. It is thus possible that the revenues derived from the canal during the early years of its operation might average about $12,600,000 per annum, if all vessels, American and foreign, were to pay tolls. If the coastwise shipping is exempted from tolls the initial receipts from the canal will amount to less than $11,500,000 during the early years of operation. By 1925 the total traffic of 17,000,000 net tons might, if the rate of tolls were maintained at $1.20 per ton, yield a possible revenue of $20,400,000 if all ships, American and foreign, were required to pay the canal levies. In all probability, however, the rate of tolls will have been reduced to $1 per net ton by 1925, thus reducing the possible aggregate revenue to $17,000,000. The coastwise shipping of the United States in 1925 will doubtless contribute at least 2,000,000 of the probable 17,000,000 net tons of aggregate traffic. Thus, if the coastwise shipping does not pay tolls in 1925 and the rate of tolls is $1 per net ton, the probable revenue of the Panama Canal will then be $15,000,000 a year, or somewhat less than the estimated annual outlays for operation, zone sanitation, government, the Panama annuity and the interest on the amount invested in the canal.

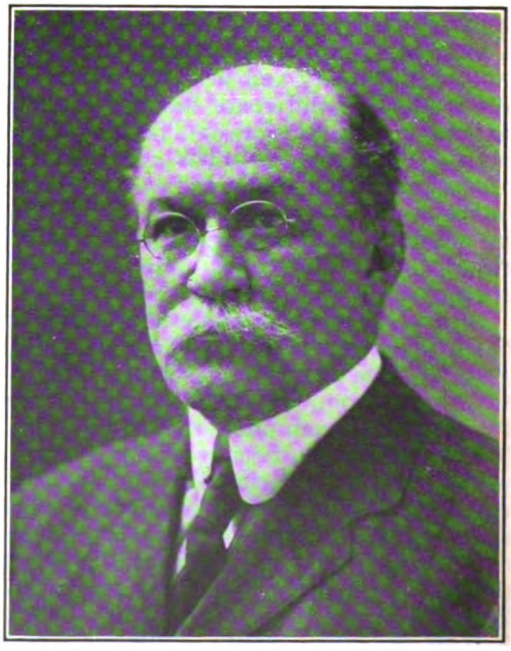
"Those who derive immediate benefit from the use of the Panama Canal may properly return to the Government a portion of the profits secured from using the canal, provided this policy can be followed out without burdening commerce. It should be the policy of the United States to apply business principles to the management of the Panama Canal and to prevent its being a continuing burden upon the general Treasury and upon the taxpayers of the United States."

Professor Johnson has stated what, in our opinion, is the strongest objection to the policy of exempting coastwise vessels from the payment of tolls. It is purely a business proposition. The coastwise traffic is now confined to American vessels and the remission of tolls would be equivalent to a large subsidy, added to the advantage of their present monopoly.

That Congress is responsive to the demand that public money should be expended in developing water transportation is seen in the annual appropriation bill brought in by the House Committee of Rivers and Harbors which provides $40,800,000. The largest single appropriation in the bill provides $6,000,000 for the improvement of the Mississippi River from the head of the passes to the mouth of the Ohio; $1,000,000 from the mouth of the Ohio to the mouth of the Mississippi, and $1,500,000 from the mouth of the Missouri to Minneapolis, and $185,000 from St. Paul to Minneapolis. Large amounts are also provided for the work on the Missouri, the Ohio, the Delaware and certain rivers in the South.

THE PRODUCER, THE RAILROAD AND THE CONSUMER.

President W. W. Finley, of the Southern Railway Company, at a meeting of agricultural societies held at Baltimore recently, discussed in some detail the relations between the producer, the railroad and the consumer. President Finley pointed out that an increase in railway transportation charges had not been a factor in the increased cost of living, a fact shown by the stationary railway rates. Furthermore, railway freight charges play but a small part in making up the final price to the consumer. As the Secretary of Agriculture in his report for 1910 pointed out in the case of milk, the farmer receives 50 per cent of the retail price, the railroads 7 per cent, and 43 per cent goes to the retailer. In the case of butter the freight charge is one-half of 1



W. W. Finley,
President of the Southern Railway.

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per cent of the consumer's price; eggs six-tenths of 1 per cent; potatoes 7.4 per cent. The main concern of the consumer with the railroads is the facilities which they can furnish. The importance of transportation is constantly increasing with the growing diversification of industry in all parts of the country. So far as agriculture is concerned, this diversification has taken the form of an increase in the production of perishable products, such as fruit. If the facilities of the carrier are not sufficient for the transportation of these products a large amount must be wasted. As President Finley states:

"In a growing country, such as ours, with increasing exchanges of the products of agriculture, manufacturing, and mining, the demands upon the railways for additional tracks, terminals, cars, and motive power are constantly growing. The situation is one which requires that, in ordinary times, the railways shall have an unused margin of facilities in order that they may be able successfully to meet sudden increases in the demand for their service. The provision of such facilities can be assured only if the railways are prosperous and if their earnings over the costs of operation are sufficient to attract capital to railway investments."

DISSOLVING THE HARRIMAN MERGER.

The plan for dissolving the Union Pacific-Southern Pacific merger is meeting with obstacles, which were not, however, entirely unlooked for. The first plan submitted to the Supreme Court involved either the distribution or the sale of the Southern Pacific stock among the stockholders of the Union Pacific. The Supreme Court, speaking through Justice Day, refused to permit this transaction, on the ground that it would, in effect, "transfer the stock from the Oregon Short Line Company, which now holds it for the Union Pacific, to the stockholders who own and control the latter company. The court is of opinion that this distribution or sale cannot be ordered. "The ultimate determination of the affairs of the corporation rests with its stockholders, and arises from their power to choose the governing board of directors. After such distribution as is now proposed, the stockholders of the Union Pacific Company may dominate and control not only the Union Pacific Company, but the Southern Pacific Company as well."

Negotiations have continued between the department of Justice and the officers of the Union Pacific, and it is expected that a plan will soon be announced whereby the Union Pacific may acquire from the Southern Pacific, either by purchase or by exchange of Southern Pacific stock, which it holds, the entire stock of the Central Pacific, of which there is $17,200,000 of preferred and $67,275,000 of common. After this transfer had been made the Union Pacific and Southern Pacific systems would be entirely separated. With the Union Pacific and its eastern connections extending from the Missouri River to the Pacific Coast over the present Central Pacific lines, and the Southern Pacific confined to the route from New Orleans through Texas to Southern California and San Francisco, the two transcontinental systems would be independent. The Southern Pacific could reduce its capitalization by the amount of stock thus obtained, and the transaction would leave the Union Pacific with less than $60,000,000 of Southern Pacific stock, which could be sold to Union Pacific shareholders at cost, about $75 per share. There is reason to believe that the disposition of so small a percentage of Southern Pacific stock would not be prohibited by the court. Meanwhile, the first direct effect of the decision is seen in the retirement from the Southern Pacific board of all directors representing the Union Pacific interests.

Instructions for the Guidance and Protection of Employes.—The Pennsylvania Railroad has begun the distribution of 50,000 copies of a book of "Don'ts" for employes working on trains, tracks and in shops.

That there is a large foreign element now employed on the Pennsylvania is taken from the fact that the "Don't" book, or "Instructions for the Guidance and Protection of Employes," as the company calls it, is printed in Italian and Polish, in addition to English.

Some idea of the small details the Pennsylvania is watching can be seen from the contents of the "Don't" book:

"Don't step in front of or attempt to adjust couplers on moving cars, nor stand with back to cars coupled to engine."

"Don't stand between cars when coupling."

"Don't step on footboards on pilot or tender when engine is approaching you."

"Don't go under a train to make repairs or adjustments, until full protection has been secured."

"Don't place coal on tenders in such a manner that it may fall off."

"Don't think because a wire is dangling it is harmless. If necessary to remove it, use two sticks or boards."

"Don't wear gloves or loose clothes when working with machinery or tools."

"Don't use tools in bad order."

"Don't touch the third rail with person or tools. If necessary to remove an object therefrom, use a 'dry' wooden stick."

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Contemporary Opinion

The Case for the Railroads.

IN an editorial, under the above head, the "New York Journal of Commerce" discusses the causes which led to the formation of regulative bodies, both State and national, among which it makes prominent mention of the investigation of a committee of the Chamber of Commerce and Board of Trade and Transportation in New York, in 1879, which apparently showed excessive capitalization of certain roads operating out of New York. Of the influence of the results of this investigation, the editorial says:

"The report of this committee paved the way to the creation of the New York State Railway Commission and was a powerful influence in bringing about the enactment of the Interstate Commerce law of 1887. But railroad managers were slow to recognize the necessity of consulting the general interests of the public in the conduct of the business under their charge. As Mr. Logan H. McPherson puts the case in an article in defense of the railways in the 'North American Review': 'The people came to distrust the railways; the railways came to distrust the people.' But by and by the railroad managers began to realize that the will of the people in this country is supreme and that, however misguided they might think it, the only way to modify its dictates was by a process of education and candid discussion. The enactment of the Mann-Elkins bill in 1910 compelled the railway presidents to adopt this point of view, and from that time on there has been, according to Mr. McPherson, a new attitude toward the public. The Bureau of Railway Economics is one outcome of this desire to place the essential facts of railway management and development in the United States before the people. That is to say, the bureau is continuously engaged in a line of studies designed to bring out information as to the broader economic relations of the railways. For example, the fact has been made clear that the capital value of railway property in the United States is increasing less than half as fast as the capital values of either the agricultural or manufacturing industries, and that the percentage of net return on capital in manufactures is over twice as high as that of the railways."

The editorial then takes up the recent address of J. J. Hill at the annual dinner of the Railway Business Association in which it was shown that during the first seven months of 1912 operating revenues increased 3.3 per cent. per mile as compared with the same period in 1911, but operating expenses increased 4.9 per cent., and net operating revenue decreased .5 per cent. The editorial then continues:

"There has been a distinct impairment of the ability of railroads to raise capital for improvements, partly because of increased competition in the money market, but mainly from the lowering of credit due to the decreased earning power and the increased expenses of the railroads themselves. On all this Mr. Hill bases his argument for a more generous treatment of the railroads, so that they may be able to provide the equipment and the terminal facilities which are imperatively needed for the efficient conduct of their business. It is obvious that when the railroad yards are filled with cars that cannot be moved the railroad loses a portion of its earnings, but the business man also loses a larger share of his trade and the workingman his employment. Hence Mr. Hill pleads that it is the duty of every business organization, of every business man, of capital interested in safe investment and labor interested in sure and remunerative employment, to help to swing the country into line behind the only policy that can help both the railroads and the people. That is an argument for which happily there is a more sympathetic public than there was a generation ago."

An English View of American Railway Regulation.

THERE has been some caustic criticism recently in the English press regarding the constant interference American railroads are being subjected to by governmental authorities in their efforts to instruct railway officials how to manage and run the properties intrusted to their care.

The "New York Times Annualist" states that surprise is being felt in that country at the length to which State interference with individual liberty has been carried, when not only must the corporations part, as in the case of the dissolution of the Harriman Merger, but they must arrange their means of parting to please the administration. A recent statement by the chairman of an English railway is quoted as follows:

"If I were an American Railroad Director, I should now be sure that there was only one way out of the intolerable state of the present relations between Federal Government and railroads, and that was the swift and speedy consummation of State ownership. How can railroads prosper under the partial control of a hostile body?"

Shippers and Cars.

FORTUNATELY the railroads, during the past few months of exceptionally heavy traffic, have, in the main, been able to handle the situation in a satisfactory manner, and with much less delay than has occurred during previous years. In commenting on the shippers' responsibility in assisting the railways to keep cars moving, the "Financial American" has the following to say:

"We have been given many excuses for car shortages on our railroads, but that furnished by the Public Service Commission for the Second District, New York, is certainly novel. It says that certain shippers are largely to blame for the inconvenience resulting to those desiring cars, through a rather brazen custom of keeping the cars containing consignments to them for several days upon sidings and using them as free warehouses. During the month of November, upon railroads under the commission's jurisdiction, it reports not less than 122 cases wherein freight cars were detained for periods

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varying from 5 to 25 days in the manner referred to. This is an inexcusable and wanton breach, and the commission is quite justified in calling public attention to it. It is a grave offence against the rights of other shippers and a practice which tends to put the railroads in a bad light with the public. When those who demand cars for shipping purposes fail to obtain them, they feel naturally resentful against the railroads, and set down their inability to furnish the cars to a railroad indifference to the rights of the public or to negligent management. Frequently complaints are made to the State commissions and to the Interstate Commerce Commission on the car shortage score, in nearly all of which it appears, or is made to appear, the railroads are to blame. It is only when the concrete illustration given us herein is furnished that the public learns the railroad is not wholly at fault. Our commission for the second district has adopted an effective way to deal with the offenders it has unearthed: it published their names in its report. If other commissions would adopt a similar course, perhaps the pernicious 'free warehouse' practice would be abolished."

Accident Publicity.

DISCUSSING the question of increased safety in railroad transportation, Julius Kruttschnitt, the new chairman of the Southern Pacific says:

"I think we should abolish the use of the word 'unexplained' in connection with accidents, the cause of and individual responsibility for everyone of which, whether serious or trivial, should be determined, sparing neither talent, time nor money to do so. The results should be frankly and freely given to the public, to enable it to form an intelligent opinion, the weight of which will be irresistible in bringing about the necessary corrections, which should be left to the railroads themselves, unhampered by hasty and inconsiderate legislation, too often inspired or influenced by promoters of patented devices.

"If the policy of investigating accidents fairly and thoroughly and locating individual responsibility therefor, making the results public, is established, the public authorities will have performed a great service to their constituents. Enlisting the co-operation of employes in promoting safety is of the greatest importance.

The Tie Problem.

THE question of tie economy is receiving increasing attention from the carriers on account of the growing scarcity of timber and the resultant higher prices. Tie preservation is becoming a necessity as well as an economy and unless a suitable substitute is found for the wooden tie and unless the roads generally adopt such methods, is likely to eventually become enforced through regulation. By the rapidity with which preservation plants are being established, however, no action of this kind appears probable. Some interesting comments on the tie situation in general, appear in the "Wall Street Journal" of January 8th, as follows:

"So much stress is laid upon the importance of the rail in the creation and up-keep of railroads that the more modest but indispensable tie, is little thought of unless grave accident calls attention to its fundamental position in construction. Ties represent perhaps the largest return in proportion to investment, of any part of the equipment of a railroad. Cheap in themselves, their aggregate cost is great. Some idea of this is given by figures showing what ties really mean in the bills of the railroads. Minimum renewals per annum, varying all the way from the high maintenance of the standard roads to the perfecting of poor trackage, represent at the least 75,000,000 ties. The 750,000,000 railroad ties now in use have an initial value of $300,000,000.

"Problems presented by the question of ties are awakening expert attention. The time is not far distant when lumber supply will cease to offer enough material for ties in addition to increasing demands from many other industries. Tie-substitutes are being sought. Steel has not yet given satisfactory results. Opinion leans to concrete ties. Without allowing for any growth of our railroads, the cost of replacement of wooden ties on the railroad tracks of the country, would mean a sum of more than $1,500,000,000. This takes inadequate account of the developments of the future. Nor does it reckon with the electric and trolley systems which are slowly, or rapidly, starting to equal in extent the 250,000 miles of railroad track in the United States.

"There is another consideration in the tie question. Between 60,000,000 and 75,000,000 ties are burned each year, the railroads having found it practically impossible for various reasons to sell or to give away the discarded ties. This destruction represents about 2,000,000 cords of wood, whose value is from $7,000,000 to $8,000,000. It would seem that this might be saved 'and given to the poor.' But the poor will not take it, as attempted distribution has shown."

Judicial Recall of a Judge.

PRESS editorials upon the conviction of Judge Robert W. Archbald, of the United States Commerce Court by the United States Senate are practically a unit in their endorsement of its wisdom and justice. While extenuating circumstances are pleaded in some particulars and in some quarters, the finding contained in the statement of Senator Root that Judge Archbald "used the power and influence of his office as a judge of the Court of Commerce to secure favors of money value for himself and friends from railroad companies, some of which were litigants in his court and all of which were under the regulation of the Interstate Commerce Commission, subject to the review of the Court of Commerce" appears to have generally convinced the press that his usefulness as a judge has been ended.

The chief source of satisfaction to many editorial writers, however, rests in the assurance, through the conviction, of the ability of present constitutional laws to adapt themselves to the necessity of recalling judges, when such action became necessary. As a leading New York daily remarks:

"The highest significance of this proceeding and its result lies in the illustration it affords of the solemn way in which charges against judges should be regarded and the deliberate manner in which they should be treated in de-

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termining the question whether their dereliction is one that would justify their removal from the bench and stamping an indelible stigma upon their name and reputation. It was in impressive contrast with the unseemly exhibition that might be made if judges could be 'recalled' by a popular vote whenever they rendered decisions which were displeasing to the sentiment prevailing at the time. In nearly all the States there are constitutional provisions for the removal of judges which afford adequate methods of determining whether there are reasons which justify it, and it would be an evil day when formal and impressive proceedings should be superseded by an exciting campaign for a 'recall.'"

American Waterways.

IN a recent issue of the "London Economist" one Lawrence Hamilton, calls attention to the necessity in Canada for an artificial waterway in order that the Dominion may not be behind the times in new aquatic transportation projects. Mr. Hamilton has made the interesting, not to say amazing, discovery that a great internal waterway 2,700 miles long, connecting New York with New Orleans, is being constructed at a cost of £33,000,000 or more.

Mr. W. M. Acworth, the eminent English economist, in a letter noticing the startling statements and some of the opinions of the economist's correspondent writes to that journal:

(1) What is and where is "the great internal waterway, 2,700 miles long, connecting New York with New Orleans, approaching completion?" And how comes it that hitherto the American technical Press has combined with the British public to "ignore" it?

(2) Why is this waterway 2,700 miles long, seeing that from New York to New Orleans is only about 1,200 miles, and even round by Pittsburgh can hardly be more than 1,300?

(3) What will be the maximum tonnage of vessels which will be able to use the new internal waterway throughout its entire length?

(4) Why does Dr. Hamilton call the American freight rates "exorbitant," seeing that they only return a very low rate of interest on the construction capital, and that they are certainly the lowest in the world—roughly speaking, one-half the rates charged on the railways of the two countries, France and Germany, which have done most in the development of artificial waterways?

(5) As for Dr. Hamilton's projected Canadian waterways, can he tell us whether anybody but himself projects it; how it will get over the passes of the Rockies; what freight rates it would need to charge in order to pay; and for how many months the Canadian climate would permit its operation?

(6) Lastly, I would venture to ask Dr. Hamilton a question which I have publicly asked advocates of internal waterways for a good many years, without even so much as obtaining an answer: Can he tell me where to find any independent scientific evidence that an artificial internal waterway is ever under any circumstances a more economical method of transportation than a railway? Evidence of this class, so far as I have been able to study it—for Germany, for instance, in Uhlrich's "Wasserstrassen und Staffel Tarife"; for France, in Colson's "Transports et Tarifs" (confirmed by the Report of the Assistant Commissioner who investigated French waterways for the recent Royal Commission and Canals); for American in two very recent books, Moulton's "Waterways versus Railways," and Shelton's "Lakes-to-the-Gulf Deep Waterways"—is unanimous to the contrary.

Government Ownership in Japan.

IN a recent issue of Harper's Weekly, George R. Bedinger, discusses the nationalization of railways in Japan, which began in 1906, and which, in his opinion, has met with indifferent success. He has been a close observer of the results obtained which he criticises for the following reasons:

First.—No bureau of government officials will run the railroads on as sound business principles, with a view of getting business by carrying out the wishes of the public, as will be done by a private company or corporation that has this one matter as its excuse for existence.

Second.—A spirit of officialdom enters the service of government owned lines, and such spirit detracts from real good business efficiency. He points out that when a railway is a part of an august central power, it is removed from healthy criticism as well as from free competition.

Third.—When the government owns a great empire-wide interest like railways, it is likely that certain members of the government will be tempted to use that interest as a means of giving places to persons who in some way they wish to serve.

In conclusion, Mr. Bedinger says:

"Thus, after all, the question of the success or failure of Japanese railway nationalization resolves itself into a matter of efficiency. If after nationalization the railways have been run far better than before and given the people much better service, well and good. But from what I have been able to see and learn of the matter during a residence in Japan during the last eleven years I cannot see that this has been the case. The extension and improvement of means of transportation in Japan have not gone ahead as rapidly as they should have. This is due to growing official red-tapism on the part of the government and the actual blocking of private enterprises for rapid transit, such as suburban tramways, because they would prove local competitors to the state roads."

Public Rights and Labor Disputes.

PRESIDENT W. C. BROWN, of the New York Central, in a recent interview declared himself as being in thorough accord with the suggestion of the Arbitration Board which recently presented its report in the dispute between the locomotive engineers of the Eastern Railroad, recommending permanent arbitration of all public service labor troubles and the recognition of the public as one of the three groups interested in the dispute. Mr. Brown said that he would like to see the matter taken up by Congress and expressed in a statute clearly defining the rights of the three parties to all such controversies.

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Railway Mileage.

THE "New York Commercial" comments editorially on the fact that the total miles of railroad constructed last year amounted to only about one per cent. of the total mileage of the country. In view of the vast areas still unserved by railway facilities it sees an ominous significance in this abnormal lack of development. In seeking a reason it finds that "money is dear and hard to get for transportation enterprise except it seems clearly a definite purpose in establishing feeders to well established routes or is used to perfect the facilities and methods of lines which carry a great good will asset in the business already builded and assured. Through the newer and sparsely populated regions, just beginning to develop potential wealth and civilization only the lure of building the great steel highways of traffic has shrunk to a negligible factor.

"Perhaps the principal drawback to new railroad building, aside from the fact that so much capital is going into electric trolley lines is the high rate of interest that roads are compelled to pay for money raised on short term notes. The speculative element is essentially killed, and the reduction of new ventures has been attenuated to nothing. Capitalists both in this country and abroad can find so many methods of investment that imply a minimum of risk and a more rational promise of quick and easy profit.

"But railroad building cannot continue in this parlous condition without a recognition of serious damage to the general prosperity of the whole nation. Instantly that this sense becomes acute and widely diffused, there will be a reaction. But railroads will be built from the outset on a much more substantial and authentic basis of estimate. Those that are built will be constructed with ends in view which will prevent them from passing through a dozen transmutations and reorganizations before they finally attain a stable status."

Railroad Casualties.

THE Philadelphia News Bureau in discussing casualties on American railroads, states that the appalling number of such accidents excites wide discussion when the figures are made known, and says:

"These figures overwhelm the public mind and there are loud calls in the press for supervision which will lessen what is spoken of as the annual national calamity, and comparisons of similar casualties in other countries are cited to the disadvantage of America.

"It should be remembered that this country has a large excess of railway mileage over any other nation and at the same time less rigid rules as to trespassers and grade crossings than are in force in other countries. Remedial laws are being passed constantly in all the States which tends to an amelioration of the situation, but a great deal remains to be done, in which no doubt the States and railroads will co-operate, as they have for a quarter of a century or more.

"As far as the American railroads are concerned, the figures are stronger against them, as the casualties are not classified in the same manner as in other countries. In England the railroads insist that only those accidents for which they are solely responsible be classified as railroad accidents, and that those accidents which the public or individuals are responsible for be put in a class by themselves. A long series of such reports as are issued in the United States have not brought about the same distinction here. In this country all accidents on railroads are attributed unthinkingly to the delinquencies of railroads. More than half the persons killed on railroads last year were trespassers who lost their lives in disobeying the laws of States and the rules of railway companies. For these casualties the railroads have no responsibility at all. Very many persons were killed or injured while stealing rides on freight trains, and for these accidents it is not proper to hold the railroads responsible. The number of casualties which are properly chargeable to the railroads is a small portion of the total reported by the Interstate Commerce Commission."

The Poor Commissioner.

THE "Northwestern Miller," in sympathetic tones, bewails the fate of the poor railway commissioner, and bespeaks the sympathy of those more fortunately placed. In an editorial in its issue of January 8th, it says:

"The milier regards the Interstate Commerce Commissioner as a personage whose business it is to sit on a raised dais and dispense sorrow. Between time he denies petitions, wrecks plans, and blasts hopes. Now and then he pauses to write an opinion in substance as follows: 'The commission, confidently assuming that it has jurisdiction in this case, is of the opinion that the plaintiff is without sound basis for his petition and that, furthermore, he is in contempt and should, by rights, be indicted for mayhem.'"

* * * * *

"Yet the commissioner has to do it. He has to construe the law in cases that the justice of the peace of Ashtabula, Ohio, would refuse to hear. He has to sit up nights trying to secure a trial balance between the rate on fresh eggs in cases from Texarkana to Memphis and the break-bulk switching charge on crated live hens from South Water Street to Minnesota Transfer. He has to do this and more, and all the while under his windows he hears the dull roar of the populace and feels that they need but a leader to begin the assault upon the Bastile itself.

"Is it ours to wonder why the poor commissioner goes off at half-cock now and then? . . . . Would not you do the same? Would not you blow up now and then, strap a cannon to your waistband and go out shooting the little ones on their way to school?

"Do not be too hard on the commissioner. He also is to be pitied. He doesn't get his transit privilege curtailed, but he has to hear complaints that could be decided with a set of A. B. C. blocks and ten fingers to count on; he has to wander through morasses of legal language as dark as the gloom of despair and he has to listen to lawyers with bull-fiddle voices until he himself goes home with an ingrown case of sympathetic croup. He earns his pay. He has his sorrows. Perhaps even now he is sorry for the millers. Who knows?"

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The City Freight Station and Its Small Shipments

SOMETHING OF COST AND REMEDY.

By C. D. TRUEMAN.

Editorial Note.—While the author's treatment of this subject may not meet with the endorsement of the majority of traffic and operating officials, it has the virtue of being new and suggesting methods whereby the through movement of freight may be facilitated and certain economies ejected into terminal operations. The author states in a communication of recent date, that the detail essential to the successful operation of auto trucks in the manner indicated in his article, and of making freight ready for them on railroad property has been satisfactorily worked out and that the installation of a practical system presents no unusual problems.

C. D. TRUEMAN.

STEADILY the cost to railroads of handling small shipments of freight within important cities has grown to proportions dangerously near, if not in some instances exceeding, the full gross earning from the whole transportation of such traffic. While mechanical freight handling equipment has been introduced in a limited way in a few instances, as a means of reducing these costs, it is apparent that the most serious increases result from causes not susceptible to mechanical treatment;—from the expansion and elaboration of intra-mural facility and service which an intense and highly competitive commerce requires of railroads. For this reason the hope for effective treatment lies primarily in other directions.

Doubtless the most potent factors of increase are the outer station and the custom of holding unclaimed freight on station platforms for a maximum number of days or indefinitely. Until there is radical revision of these propositions;—revision which will eliminate the outer station as a freight handling proposition, and provide for the concentration of small shipments at *one central station* so as to eradicate their movement by car between widely separated city stations, the cost of handling must continue to rise.

PURPOSE OF THE OUTER STATION.

The chief purpose of the outer station is to bring the physical railroad nearer to active centers of the commercial and industrial expansion of cities;—a short cut as it were, from which the patron of transportation realizes great benefits. As the distance between his place of business and the railroad is reduced, so are his advantages over his less fortunately situated competitors increased and his carting expense curtailed. To him such stations are initial gateways to railroad transportation, and it is his understanding generally that freight moves directly from them to remote points.

To the railroad, however, they are necessarily auxiliary to central or transfer stations;—a secondary proposition or the segregated units of a central plant; for, in the practical operation of railroads small shipments for delivery to outer stations must move from the originating point directly to the central or transfer station of the destination city, at which place they are unloaded, the freight assorted, and subsequently reloaded into other cars for movement to their ultimate destinations, whether such destination be an outer or a remote station. While the cost of handling at transfer places, together with the subsequent yard movement necessary to reach outlying destinations, is by no means inconsiderable, it is nevertheless elastic and subject to contraction as varying conditions of business may require, whereas the outer station by virtue of which those costs are created, once erected, gives rise to the further and inflexibly fixed expense of interest on investment, taxes, insurance, maintenance, and depreciation, the sum total of which is chargeable also against the business handled thereat. While the mercantile centers at which such stations are situated contribute an additional tonnage for movement by rail, it comes under conditions requiring elaboration of method, enlargement of facility, and complication of yard operation.

Theoretically and usually, an enlarged volume of business yields a corresponding increase of net revenue, but this is not true of small shipments of freight which pass through stations, for, while the earning therefrom remains constant, the cost of handling per ton unit is the subject of fixed expense and varying conditions beyond the control of railroads, i. e., the earning from a ton of freight may be two dollars, and the fixed cost of owning and maintaining the station at

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which that ton of freight originates may be thirty dollars per day. If, therefore, thirty tons of freight are handled thereat in one day, the station or fixed cost is one dollar per ton, but if on another day the business of that station declines to fifteen tons, the station or fixed cost becomes two dollars per ton.

Universally the volume of less than carload freight fluctuates widely, and inasmuch as each square foot of station area makes necessary an expenditure for ground on which interest and taxes must be paid, and proportionally increases the cost of insurance, maintenance, and taxes for structure and tracks, it is customary to provide but a limited excess of floor space above that actually necessary to take care of the business currently handled thereat, and to add to or otherwise enlarge such facilities as the development of business may from time to time require. It may, in most instances, be possible to anticipate with accuracy the development of business at any station for a given period of years, but the effect of providing facilities in advance of current needs must invariably be to increase the unit handling cost of business actually existing at the time such structures are provided.

Cost of the City Freight Station.

At one city of about six hundred thousand inhabitants, whose commercial practices, railroad methods and unit costs typify the general situation at important centers throughout the land, one splendidly equipped and managed railroad operates six freight stations, each of which is situated conveniently to one of six active mercantile centers, one being used also for the assemblage and distribution of small shipments originating at and destined to the five outlying centers.

That portion of this complement of stations and accompanying tracks, which is devoted to less than carload quantities of freight, occupies an aggregate of five hundred and twenty-one thousand square feet of ground, valued in the market at $1.40, $1.00, $.75, and $.55 respectively per square foot or $513,000 in all. By adding to this the investment in structures and tracks necessary to give this ground a freight handling utility, the total investment for less than carload purposes is found to be in round figures $1,020,000. This computed on a 5 per cent interest basis, against the tonnage actually handled thereat, shows that each ton of freight passing through these stations costs the railroad in interest alone 15.05 cents. Add to that, taxes, insurance, and a conservative figure for depreciation of structures and tracks, and the cost per ton advances to 22.35 cents. This, then, is the unit expense created by the physical station; the so-called fixed cost, by which it becomes clear that had the railroad provided facilities for a prospective future business; —facilities, say, one-third larger, the fixed cost per ton of freight would be quite close to 29.8 cents, or 7.5 cents greater than it now is.

Additional Expenses.

The movement of such freight between central and outer stations creates a further expense in the way of fixed cost arising from the use of locomotives and cars. By analysis of actual practices this is found to advance the fixed cost, which is properly chargeable against the terminal handling of such freight at the city particularly in mind, to 26.7 cents per ton. To this must also be added 74.7 cents per ton unit as the combined cost of car inspection, repairs, wages of engine and train switching crews, light, heat, water, watchmen and manual labor at station platforms, making the total terminal handling cost, exclusive of supervision, clerical work, and maintenance of running tracks, a fractional part of one cent above one dollar per ton. *Including station clerical work,* this cost is increased to $1.31 per ton, or 6.5 cents per hundred pounds.

While this cost is greater perhaps than is generally suspected, it is not, of itself, a serious matter, but it is the expense arising from *but one* terminal handling, and a similar operation involving a similar expense *is necessary at the opposite extremity of the journey,* while the road haul intermediate to these extremities is a matter of still further expense.

High Cost of Handling Local Traffic.

Summarization of an analysis made by the writer for the purpose of ascertaining the facts as they exist in actual practice, with reference to the operation of several freight stations within one city, including several road and transfer stations of differing classes, shows that 12 per cent of the less than carload tonnage moving to and from that city was local to a 220-mile division of a large system of railroads, and earned gross to that division amounting to $3.06 per ton. By deducting from this the handling cost *within* that city of $1.31, and the cost of passing it through the delivering road station, of from 95 cents at representative country stations to 73 cents at industrial stations, a residue from gross earning of slightly less than $1.00 per ton, with which to pay the expense of its road movement, is indicated. When it was found necessary to pass such freight through an intermediate transfer station 61 cents of the remaining dollar was absorbed, and in round figures but 39 cents remained to pay the expense of its road movement. Almost 50 per cent of that tonnage did necessarily pass through a road transfer station 96 miles from the city referred to.

The most authoritative figure of road costs in the locality under discussion is an average for all classes of freight of .4 cent per ton mile, which means that the road haul up to the transfer station mentioned absorbed 38 cents of the 39 cents which remained. Inasmuch as the purpose of taking freight to a transfer station is to make it ready for a further road movement or journey, it is seen that an average of but one cent per ton remained to pay for the movement beyond that station.

Considered as a *system* rather than a division proposition, the same ton of freight earned gross for that system of railroads $3.68. The cost of handling it at one extremity of its journey was as before $1.31, and while it is not possible to ascertain even approximately, the exact average cost of handling at the opposite extremity of its journey or of intermediate transfer operations, I doubt not the propriety of *assuming* that those costs were and are necessarily greater than is true of the division costs above mentioned. Should they be *no greater,* however, the cost of handling system freight through both the initial and final extremities of its journey, would use up $2.26 of the gross earning of $3.68, leaving $1.42 per ton unit to pay for its road movement. Should it pass through an intermediate transfer

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station en route, an additional $.61 would be used by which the total handling cost would advance to $2.87, and the residue from gross earning with which to bear the cost of road haul would decline to $.81 per ton.

While the analysis shows that a surprisingly large part of the less than carload freight carried by that system of railroads to and from the city referred to, (both of which are typical of the general situation), is handled at inconsiderable profit, and much of it at an actual loss, the cause for *serious reflection* lies not so largely in that situation alone, as in the fact that such costs *are still increasing*, and that they must *continue* to increase in proportion to the advance of fixed expense arising from enlargement of intra-mural facilities. So long as existing station methods are continued, just as long will more and larger stations—more cars, locomotives, switching crews and yard capacity be necessary.

Possible Remedies.

In searching for remedies whereby the reduction of the cost of terminal handling may be accomplished, the practice of holding freight on station platforms until its consignees or their draymen remove it should be first considered. Unfortunately this practice not only contributes additional expense to the railroad but has the effect, as well, of slowing down the movement of freight between shipper and consignee, and thus compromising high efficiency and precision of road performance. For example, a Pittsburgh shipper sends to one of the freight stations of that city a small shipment consigned to a merchant in the retail district of Cleveland. The car into which it is loaded is sealed about the time the shipper closes his place of business for the day, and by 5.00 o'clock the following morning, or two full hours before the consignee opens his place of business, the car containing that shipment has traversed the 150 intervening miles and is being made ready at the Cleveland station for delivery to the consignee's drayman.

The railroad has performed its transportation work perfectly. It has moved the shipment from Pittsburgh to Cleveland, while the merchant who is to receive it, slept; and has brought along with it about 1,200 tons of similar freight for other persons. This is really a fine performance, and one requiring vastly more preliminary preparation of the physical railroad, its auxiliary parts, and a higher degree of efficiency, precision, persistent human effort, and expenditure of money than is apparent to its patrons. Yet *it has taken the shipment only to its freight station*, where it must remain at the risk of the railroad until the Cleveland merchant calls or sends for it. It frequently happens, however, that he is not aware of the exact time of its shipment or arrival or has not made prompt provision to haul it, so that it remains on the station floor until the following morning, when a postal card sent by the railroad agent informs him of its presence at the station. His shipment then has met delay, and while this has no logical relation to its movement over the railroad, out in the commercial world it is given such relation. The time elapsing between the receipt of that shipment at the Pittsburgh station and its arrival at the consignee's place of business is the commercial measure of transit time, and so the speed and accuracy of the road performance is minimized or lost by reason of the privilege or courtesy of storing freight for brief periods at destination stations.

Cost of Housing Shipments.

Of the stations with which I am most familiar one representative layout of the type and character essential to the less than carload traffic of a large city is of unusual interest, in that it conveys an excellent idea of the cost of housing and protecting such shipments. This particular station is of large dimensions, substantially built, and cost to construct $200,000. It is equipped with slightly more than 6,000 lineal feet of side track costing $1.25 per foot, or $8,000 in all and occupies together with these tracks 186,000 square feet of ground having a market value of $1.00 per square foot. This represents a total investment of $403,000, which creates a permanently fixed expense from interest, maintenance, insurance and taxes of $31.959 per year, summarizing with regard to the actual monthly average of freight handled thereat at 16.9 cents per ton. When it is considered that fully 33 per cent of this facility is required for the purpose of holding or storing shipments until called for, it becomes apparent that the fixed cost thereat is 5.6 cents per ton greater; or that the total of such expense is in round figures $10,000 per year greater than it would be but for the custom of leaving freight there until called for.

Beyond this, the practice of notifying consignees by postal card of the arrival of freight for them, resulting also from the storage custom, is a matter of still further expense as is shown by the experience of the same station, at which a daily average of 400 small shipments, aggregating 200 tons in weight, cost for postal cards and their clerical preparation 2.8 cents per ton, or 1.4 cents per shipment, an aggregate expense for this purpose of $1,800 annually, while the combined cost of such notification at that and the five outer stations previously mentioned is very near to $13 per day, or $4,000 annually. This cost, by the way, is steadily increasing.

Plan for Reducing Terminal Cost.

There is no question but that a period is rapidly approaching when a correction of these matters will be imperatively necessary. Indeed, such steps may be taken at the larger cities even now with decided commercial benefit and reduction of terminal costs.

To eliminate the outer station as a freight handling proposition, wipe out short term storage on station platforms and curtail the need of postal card notification, requires but the inauguration of "store door delivery," or to extend the operation of railroads to the doors of business houses. This may be done easily, profitably, and without disturbance to commerce or transportation, by means of the automobile truck, and while such addition to the accustomed operations of railroads is opposed by men of high connection in the railroad world, its underlying economic principles are nevertheless correct, and eventually the cost and delay incident to methods now followed will require its inauguration as a means of self-protection, if for no other reason.

Viewed from any conceivable angle of observation this question presents the actuality, that the *true destination and origin* of small shipments is always at business or other houses, apart or re-

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mote from freight stations, and that such shipments are essentially transported between such houses and stations by conveyances operated either by mercantile or private trucking concerns, at costs ranging from fifty cents to one dollar per ton.

ECONOMY OF TONNAGE CONCENTRATION.

By concentrating the tonnage which moves in that way, into the hands of one properly equipped and responsible agency, the chief requisites of low trucking costs will come about automatically, i. e., maximum loads, route order loads, maximum speed between objective points, minimum of empty mileage and loss of time,—by reason of which lower trucking rates would be secured to the merchant without interference to the *profit* from that service. By the operation of such service by the railroad or under its strict control, it would be eminently practicable to handle all less than carload freight at *one central station*, whence incoming freight would be taken from the car and dispatched by truck in route order loads directly to consignees in central and outlying districts of the city, instead of present practice of sending it in cars through crowded yards from central to outlying stations to be again unloaded there, and passed over the platform at further expense, after which a truck operation is still necessary.

The trucking rate *from a central* station need be *no greater* and might actually be made *less* per ton of freight than the present cost of hauling *from outer* stations to business houses where such freight goes. Shipments for outgoing movement may be handled similarly by reversing this operation and assembling it at a central point, with the effect to the railroad of loading cars of merchandise more nearly to their capacity and so reducing the number of light loads moved over the railroad. Such a system would minimize the transit time of freight by the elimination of a character of delay which cannot be controlled in any other way, and would simultaneously wipe out the interchange of merchandise cars between intra-mural stations.

The accomplishment of this end presents no grave difficulty, nor would it require considerable change or addition to central stations now existing, for while the volume of tonnage which would be thus concentrated at one point would be much greater than under the old method, the proposition of handling it is one of *organization and system*. Efficiency alone would determine the rapidity with which freight could be taken to consignees, or from shippers to the station, and in working out the details, the organization and system to be employed at the station, as well as in the handling of trucks, would be determined largely by conditions peculiar to the locality in which such service is to be installed, which briefly would include the boundaries within which trucking is to be conducted:—the normal volume of tonnage within each subdivision of such boundaries,—storage facilities for freight which cannot be delivered in that way,—scale of ton and minimum charge, and other similar questions.

The Government Railways of New Zealand

By H. T. NEWCOMB,

OF THE BAR OF THE DISTRICT OF COLUMBIA.

PUBLIC railway ownership is a topic of timely interest to all Americans. At any moment, a strongly supported proposal to displace private ownership of the railways of the United States and to substitute ownership and operation by the Federal Government may be thrust into the foreground of political controversy. Arguments in favor of such a change that are pertinent and plausible, although perhaps neither conclusive nor sufficient, are not wanting. Certainly there is much to be said in support of uniting control over rates, revenues and financing, on the one hand, with responsibility for an equation between expenses (including interest and the cost of procuring capital) and receipts from traffic, on the other hand, and, apparently, the present development of private ownership with public regulation, is rapidly tending toward their complete separation. Those who look at the problem from this point of view are not unlikely to conclude that for the Federal Government to assume ownership, where it has already assumed a steadily expanding measure of control, would create a saner and safer economic situation. In addition there are two strong classes whose support of such a change may be anticipated. There are (first) those somewhat superficial thinkers who regard the recognized inconvenience of evils of any humanly imperfect system as *proof* that *any* proposed change would be for the better and (second), that exceedingly large and influential body of conservative investors in railway securities (including depositors in savings banks and trust companies, holders of policies of insurance, endowed educational and charitable institutions, et cetera, whose funds are largely represented by railway bonds and shares), who are becoming alarmed at the increasing rigor of regulative laws and methods, and would consequently welcome an opportunity to exchange these securities for Federal bonds secured by the credit of an entire nation and the pledged wealth and earning power of an hundred millions of taxpayers.

Before this problem becomes political and its consideration is complicated by the prejudices and passions of partisanship, every effort to disseminate information on the subject is to be welcomed. The articles by Mr. C. E. Russell, recently the candidate of the Socialistic Party for the governorship of the State of New York, entitled, "New Zealand's Altruistic Railroads," in the September and October, 1912, issues of *Pearson's Magazine*, present the views of a convinced advocate of the nationalization of industry who has some first-hand acquaintance with the results of railway nationalization in New Zealand and they merit consideration. But it is possible to apprehend that Mr. Russell's marshaling of facts has been somewhat controlled, however unconsciously, by his antipathy to the capitalistic sys-

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tem and his strong predeliction in favor of government ownership and even that, for the same reason, his conclusions of fact are not invariably accurate. Plainly, public understanding would be clarified by the correction of lapses of either character.

Necessity for Intelligent Comparison.

This article will not attempt comparisons between railway service in New Zealand and the United States. The writer is not ambitious to eulogize or defend the railways or railway managers of his own country, but deems that both must stand or fall by means of the impression they have made, or can make, on each individual citizen. It is to agree with the late Henry Demarest Lloyd, a socialist as enthusiastic as Mr. Russell although of clearer perceptions, calmer judgment and more restrained in his assertions, who wrote:

> "Comparisons between results of public ownership in New Zealand and private management in other countries are absurd in face of this complete lack of any similarity in conditions." Newest England, p. 51.

Accepting the foregoing, it is considered that the most illuminating results will flow from an inquiry as to how the welfare of New Zealand itself has been affected by its long-continued policy of public ownership. If, under the special conditions there operating, the system of public ownership has plainly served much more satisfactorily than private ownership elsewhere, the fact will support, in some measure, the inference, that, the necessary changes being made, a similar system might be adapted to the widely different conditions of other countries.

So much depends, in such a discussion, upon the perspective and Mr. Russell so enthusiastically emphasizes those items of evidence which he deems favorable to his cause, that many of his readers must have overlooked the fact that he admits that the people of New Zealand are not wholly pleased with the results of their policy. But, in his second article, he said:

> "Indeed there is no lack of criticism from many sources; the way of the administration is not lined with roses. Indignant members are continually arising in Parliament to inquire why something is not done, or why something is." *Pearson's Magazine*, October 1912, p. 99.

Testimony of Henry D. Lloyd.

On this matter, Mr. Lloyd gives additional and more detailed testimony. Among other complaints, he quotes the following statement of the Canterbury Railway Reform League:

> "For many years past there has been a widespread feeling of dissatisfaction in this district with the policy adopted in the management of the railways. The objectionable features of the management have varied but little with the successive administrations of the last twenty years. The main principle that has been apparent throughout has been a determination to extract the largest possible amount of money from the pockets of the Canterbury taxpayers. Equitable rates and anything like a scientific and intelligent commercial policy have manifestly been subordinated to the exigencies of the treasury. There has been an unreasoning and almost uniform insistence upon high and vexatious charges. Instances are on record where it could be shown that it took years of demonstration to convince the official heads of the value even from a revenue standpoint of certain suggested alterations." Newest England, p. 63.

And, in the same statement, the League charged the political management with enforcing "obviously most arbitrary and unreasonable rates" and with having "ignored the responsibilities which legitimately belong to common carriers." But the relief sought was denied.

Again, Mr. Lloyd says:

> "The 'scientific' traveler could fill a volume with the complaints which he could gather from the remonstrances of railway reform leagues, deputations to the Premier and Minister for Railways, from the debates in Parliament, and from individuals with private grievances." Newest England, pp. 60-61.

Privately owned railways have been charged with killing off the potential competition of water routes by means of discriminatory rates unjustly placed at a lower level than those vouchsafed to places not located on navigable waters. Evidently, this practice, whether warranted or not, is not avoided by the device of public ownership. For Mr. Lloyd says that in New Zealand:

> "Towns with water facilities get freights and fares at competitive rates. Those dependent upon the railroads alone receive no such concessions." Newest England, p. 52.

And, giving a specific instance:

> "I found the citizens of Oamaru full of bitter complaints against the railway management of the state. The city had gone heavily into debt to make a harbour and get the advantage of the water communication which reaches every place of importance in the whole colony. The moment the harbour was finished the department put down its railroad rates and the breakwater and the wharf stand idle, almost a dead loss." Newest England, p. 52.

Even the higher charge for intermediate than for longer distances, so bitterly objected to when made by privately owned railways is not unfamiliar under government ownership. Mr. Russell relates that the private owners of the Wellington and Manawatu Railway were forced to sell to the State because they could not withstand its competition, but he omits the important fact that although supported with all the resources of revenues produced by taxation, this competition involved discrimination against the non-competitive points. Mr. Lloyd tells the balance of the story:

> "The spirit of competition is strong upon a government in business as upon the individual in business. To Palmerston, North, 140 miles from Wellington, by the State railway the rates are made the same as those of

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the private Wellington and Manawatu road, whose route is only 90 miles long. But the people at the intermediate points, who have no access to a competitive carrier, are still charged the full local rates." Newest England, p. 52.

The Tariff and the Railways.

Other discriminations are not avoided in New Zealand. Customs taxes upon consumption, adjusted for the profit of domestic producers, are the principal feature of the New Zealand revenue system, as in America, but in New Zealand, these tariff discriminations are strongly aided by further discriminations in railway charges.

> "The New Zealand railroad tariff is literally a 'protective tariff.' Slate for house fittings if imported has to pay twelve dollars a ton, where slate of New Zealand manufacture pays only ten dollars. The protective freight rate against imported paper bags and in favour of the domestic article is almost double, and so on with other things." Newest England, p. 34.

In the United States one of the most effective complaints against the protective tariff system has been that, under its shelter, American manufacturers have charged domestic consumers higher prices than those that they obtained for the same articles shipped abroad and sold to foreigners. The State railways of New Zealand sell their services for less to non-residents than to the people of the colony.

> "Rates favouring producers shipping for export are an acknowledged feature of the railroad management all through Australasia * * * * 'We can afford,' said one of the New Zealand railroad officials, 'to help the men who are producers, if we make it up on the men who drink the tea and buy the dry goods.'" Newest England, p. 38.

Physical Characteristics of New Zealand Lines.

Mr. Russell commends the physical characteristics of New Zealand lines, represents that they are provided with an efficient block signal system and states that "70-pound rails are the standard" and adequate on account of the narrow gauge tracks and the light cars and locomotives. It may well be that this standard weight of rails is sufficient but the report of the Minister of Railways for the year 1911, the latest available, shows that the larger proportion of track is far below the standard. The following data are from this report:

Weight of rails per yard	Iron		Steel	
	Miles	Per cent of total	Miles	Per cent of total
40 pounds	100	3.6	136	4.9
45 pounds	..	..	6	.2
52 pounds	61	2.2	24	.9
53 pounds	..	..	867	31.4
55 pounds	..	..	94	3.4
56 pounds	1	.1	541	19.6
65 pounds	..	..	26	.9
70 pounds	17	.6	886	32.1
100 pounds	..	..	2	.1
Total	179	6.5	2,582	93.5

So it appears that six and one-half miles in every one hundred of the New Zealand system are laid with iron rails, obsolete everywhere else in the world, and that less than one-third of the total mileage is laid with steel that is up to the very moderate standard which Mr. Russell accepts.

Mr. Russell is not more fortunate in his statement concerning the block signal system. He says:

> "In the way of safety devices, the operation of trains is on what is known as the tablet block system. It seems to leave nothing to chance nor human error." *Pearson's Magazine*, October, 1912, p. 96.

But the Minister of Railways, in the report for 1911, says:

> "The total mileage of railway controlled by electric tablet at the 31st March was 1,306 miles. The train staff and ticket was in operation on 21 miles and electric lock-and-block on 28 miles."

The foregoing accounts for 1,355 out of the total of 2,761 miles; it is to be inferred that chance and human error may be left some latitude on the other half of the system.

Concerning the efficiency that lies in curves of large radius and easy grades it is but necessary to call attention to Mr. Russell's admission that—

> "The lines are crooked and the grades appalling. On the Wellington-Auckland line there is scarcely so much as half a mile of reasonably straight track. Grades of one in forty and even one in thirty are common." *Pearson's Magazine*, September, 1912, p. 19.

Over these severe grades and "unreasonably" crooked lines the trains can run but slowly. One of the more rapid trains, the express between Wellington and Auckland travels the 426 miles in a little less than nineteen hours at the rate of twenty-three miles an hour, some schedules are as slow as fifteen miles an hour, and a good deal of the passenger traffic is in mixed freight and passenger trains that run even slower. Nor is the absence of plush and inlaid mahogany the only difference that distinguishes the passenger trains of New Zealand from those of countries in which more rapid service might seem to make ordinary comfort in transit less essential.

> "None of the traveling accommodations of New Zealand are what could be described by the American as luxurious, and those that have been provided for the second class are primitive in the extreme. Narrow, uncushioned seats, bare floors, draughty doors and windows, make the cars cheerless and uncomfortable, though in New Zealand, as elsewhere, the majority of the travelers are second class." Newest England, p. 64.

The patrons of American street cars now protest vigorously against longitudinal seats and the latest report of the New Zealand Minister of Railways shows that, in 1911, such seats were being slowly replaced by cross seats in its second class cars and it is also a fact that seat cushions are being gradually introduced.

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Location of New Mileage.

Public ownership has not only hindered the development of New Zealand railways, as will be shown later, but it has made the location of such new mileage as could be constructed a matter of political controversy and partisan strategy.

> "Where new roads are to be built is settled in New Zealand by the democracy, by the democratic methods of agitation, petition, election and legislation." Newest England, p. 39.

> "Public meetings are held, representatives are instructed how to vote, resolutions are passed pledging the people to make this railway construction and that railway reform their 'battle cry' and to refuse to vote for any candidate that will not support them." Newest England, p. 61.

In consequence there has been nothing like an orderly and planned development, lines have been unwisely located and built before they were needed or when the same expenditure elsewhere would have been vastly more advantageous. In support of these statements the following quotations from an article by J. E. Le Rossignol, in the *Quarterly Journal of Economics,* for August, 1909, are given:

> "The government had a comprehensive plan of railway construction, involving the completion and extension of lines already begun, so as to make ultimately two main trunk lines running the length of both islands, with feeders into the interior wherever a profitable traffic could be developed. But the pressure of local influence was so great as to compel many deviations from the original plan."

> "In some districts railways were built far in advance of requirements, while in others the people waited long for lines that might have been made to pay * * * *, the appropriations were doled out to more than thirty different districts, with undue regard to political influence. * * * * To such perversions of the original plan may be traced much of the financial failure in railway administration from the beginning until the present time."

Cost of Construction and Equipment.

Mr. Russell states the average cost of building and equipping the New Zealand railways (*Pearson's Magazine,* October, 1912, p. 94) as "about $60,000 a mile" and admits that this seems abnormally high for a gauge of 3 feet 6 inches, as it surely does. But either the recent cost has been more than twice this figure or Mr. Russell was grossly misled when he wrote the following:

> "In the New Zealand railroads there is no increase of caiptalization except for the one item of building and equipping additional lines." *Pearson's Magazine,* October, 1912, p. 93.

But the official New Zealand publication entitled "Statistics of the Dominion of New Zealand," for 1910, gives the following:

Year	Railway Mileage	Capitalization
1895	1,993	£15,352,513
1900	2,104	16,703,887
1905	2,374	21,701,572
1910	2,717	28,513,476
1911	2,753	29,606,546

Converting pounds into dollars at the rate of $4.86½, the following table has been calculated from the foregoing data:

Period	Increase in mileage	Increase in capitalization	Average capitalization per mile of new mileage
1895-1900	111	$6,573,948	$59,225
1900-1905	270	24,313,738	90,051
1905-1910	343	33,139,913	96,618
1910-1911	36	5,317,785	147,716

These figures show that the increase in opened mileage between 1910 and 1911 was 36 miles and that $5,317,785 was added to the capital charged to opened lines during the same period. Either the cost of the new mileage was $147,716 per mile, plainly an highly exorbitant cost for any narrow gauge construction, or a part of this new capital was charged to lines opened in earlier years. And the same statement would be applicable to the apparently progressively increasing cost of such five-year periods since 1900.

High Rates.

The standard of excellence invoked by Mr. Russell is implied in the following:

> "To the average New Zealander a railroad is a device that at the lowest possible rates carries to market the things that people must have." *Pearson's Magazine,* September, 1912, p. 18.

It has already been shown that in selecting the markets to which it will carry at the lowest rates that it offers, the New Zealand governemnt discriminates in favor of the foreign market, but, beyond this, its rates are not to be regarded as low according to the standards that prevail elsewhere.

> "New Zealand freight rates are of course high in comparison with ours." Newest England, p. 51.

> "For first-class travel in New Zealand the average cost (including commutation, return and special excursion tickets) is two and one quarter cents a mile. Ordinary one-way fares are higher. The one-way first-class fare between Wellington and Auckland is $13.23, which equals 3.1 cents a mile." *Pearson's Magazine,* September, 1912, p. 19.

> "Passenger rates * * * * are definitely settled on the basis of two cents a mile, *second class,* irrespective of the line or the distance." *Pearson's Magazine,* September, 1912, p. 19.

> "It seems probable that the average fare per passenger-mile is slightly under 1d. (2 cents), and, therefore, very close to the average of the United States (2.014 cents)." J. E. Le Rossignol, *Quarterly Journal of Economics,* August, 1909.

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"* * * * the average charge per ton-mile is not much less than 2d. (4 cents), and certainly not less than 1.75d. (3.5 cents), * * * *" J. E. Le Rossignol, *Quarterly Journal of Economics*, August, 1909.

The Political Influence.

Mr. Russell seems to have attempted to avoid the inevitable refutation of his conclusions reposing in the fact that the average rates of New Zealand are not low, by dwelling at considerable length upon certain railway services that are there performed "gratuitously, or something like that" (*Pearson's Magazine*, September, 1912, p. 19), that is either for nothing or at rates that are obviously below cost. Such services are varied and numerous and some of them have the sanction of ultimate economic advantage but no one can fail to observe that they are manifestly granted, in nearly all if not all instances, for the benefit of social groups of a certain solidarity, the united support of which must be assumed to be of great political advantage. The bare enumeration of these services must suggest the observation of that profound political philosopher, the late W. E. H. Lecky, that with universal suffrage the art of politics requires each candidate to become a competitive bidder for the support of as many as possible of those groups into which the different interests and opinions of mankind divide every society. It is easy to imagine the New Zealand candidate soliciting the support of those to whom railway services are granted without charge or at charges much below cost and arguing the value of these services and claiming to have shared in rendering them available—or it may be promising to extend such favors to other groups. And every writer on New Zealand's railways has given testimony that this is exactly what does happen.

There is, however, no such thing as free railway service nor are such services ever actually obtained for less than they cost. If a service is free to the person directly advantaged by it, its cost is borne either by the purchasers of other services or—given government owned railways—by the taxpayers. And if rendered for a rate less than cost the difference must be made up in the same way. There is no difficulty in discovering who has made up the persistent annual deficit of the railways of New Zealand—these losses have been met by taxation.

> "None of the Australasian governments make both ends meet in their railroads. None of them are able to pay out of the receipts of the railroads the full interest on the money borrowed to build them. The taxpayers have to go down into their pockets every year to make the deficit good." Newest England, p. 49.

The People's Burden.

This is the larger and final aspect of "New Zealand's Altruistic Railways." For their sake the Dominion has assumed a vast burden of indebtedness, they do not pay expenses, and the taxpayer foots the bill. Before proceeding to further proof of this assertion let an answer be given to the inquirer who asks who this New Zealand taxpayer is.

> "The total revenue from the land and income tax is only $3,329,340 a year, while the tariff produces $10,201,155. The average rate of the tariff is twenty-five per cent and the rates on the necessaries of life are much higher than the average. Tea is forty per cent; sugar, thirty; rice, forty-two; salt, forty-eight; kerosene, ninety. The largest taxpayers are spirits, tea, sugar, tobacco, kerosene, currants. These are the poor man's necessaries; which means that a man pays taxes according to the size of his family; and the poor man in all countries is the family man." Newest England, p. 124.

In 1911 the New Zealand customs tariff produced $14,730,388 and the land and income taxes produced $5,039,936. The New Zealand customs tax was at the rate of $14.61 for each man, woman and child in its population; the tariff of the United States, which is not considered low, produced, in the same year, at the rate of $3.35 per capita of population.

Low Earning Power.

The present average rate of interest on the par value of the public debt of New Zealand is 3.7 per cent, but, as less than par has been realized by the New Zealand treasury from the sale of its bonds, the actual rate is higher. Assuming the cost of railway capital to be 3.7 per cent, however, the following official statistics, from the latest report of the Minister of Railways, show that in only two of the last thirteen years has this rate been earned even on the amount of capital carried on the records as the cost of the railway open to traffic, an amount that is understated in a manner obvious to any accountant.

Year	Per cent earned on cost	Year	Per cent earned on cost
1899	3.29	1906	3.24
1900	3.42	1907	3.45
1901	3.47	1908	3.33
1902	3.43	1909	3.13
1903	3.30	1910	3.80
1904	3.58	1911	4.06
1905	3.30		

The foregoing percentages are all, in fact, much too high. For example the average for 1911, 4.06 per cent, was calculated upon the nominal cost of £29,606,546 which is far too low. To get the real amount of taxpayers' investment in railways this sum must be increased by £1,903,414, the cost of railways not yet opened, and by £4,256,025 the admitted sum of the accumulated deficits, so far as they are of record. This would make the total cost in 1911, £35,765,985, or $174,001,517. As the surplus over operating expenses was £1,190,910, or $5,793,777, this gives a return on capital of 3.33 per cent. Even this percentage is above the truth for the same corrections ought logically to be applied to all the earlier years, thus increasing the annual deficits that are properly to be carried into cost. It is wholly probable that the real present capital cost of the New Zealand railways exceeds £40,000,000 and, consequently, that the actual return on capital for the best year in their history was less than three per cent.

Enormous Public Debt.

The New Zealand taxpayer cannot be oblivious to the fact that the governmental policy, of which

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railway ownership is a part, has piled up in that land, so favored by its isolation that it shares with the Commonwealth of Australia the advantage of being the only region on the globe where national indebtedness does not represent almost exclusively the losses of destructive warfare, the greatest per capita public debt that burdens any people. The following figures are from the latest Statistical Abstract of the United States:

NATIONAL DEBTS.

Country	Average per capita of population	Annual interest, per capita of population
New Zealand	$363.05	$11.58
United States	10.88	.23
France	158.60	4.70
German Empire and States	75.40	3.45
Italy	75.08	2.80
Russia	28.93	1.29
Spain	98.00	4.04
Canada	66.46	2.10
Brazil	38.60	1.36
Argentina	91.50	4.38

LACK OF DEVELOPMENT.

Such comparisons as the foregoing require no comment; they speak for themselves. It is not surprising, that with this accumulating burden of indebtedness and with its notoriously unprofitable railway system, public ownership has proved an hindrance rather than an help to railway development. There is no other possible explanation of the fact that from 1900 to 1910 the railway construction of New Zealand was at the rate of barely sixty-one miles per year and that in the fiscal year 1911 only thirty-six miles were opened to operation.

> "In the four years from 1873 to 1877, 907 miles of railway were completed, making an average of 251 miles a year. In the ten years following only 701 miles were built, in the next ten years only 304 miles, and in the ten years ending March 31, 1908, which were years of great prosperity, only 416 miles were completed, not because the colony had all the needed railways, nor because none of the projected lines could be made to pay, but chiefly because of the inability of the Government to borrow adequate sums; and this may be traced to the unprofitable character of the lines already built." J. E. Le Rossignol, *Quarterly Journal of Economics*, August, 1909.

> "A section of the main trunk line between Auckland and Wellington, about two hundred miles in length, has taken twenty-three years to build, although it was the most important link in the whole system, and promised to develop a large and profitable traffic." J. E. Le Rossignol, *Quarterly Journal of Economics*, August, 1909.

> "* * * * the funds available for railway construction have been distributed, not to say frittered away, in various parts of the country, in the building of small bits of line, instead of being concentrated on one or two important works. This was largely due to political considerations." J. E. Le Rossignol, *Quarterly Journal of Economics*, August, 1909.

Thus the public railways of New Zealand have caused a vast burden of public debt and taxation, which has already retarded their adequate development, and without preventing discriminations in charges or affording services at rates as low as those offered in the United States or elsewhere where private ownership prevails. The annual deficits are made up by high taxes on consumption and the wealthy and landed classes are the chief beneficiaries of the system. Even the employes of the railways protest that they are underpaid and subjected to conditions that would not be tolerated in private enterprises.

> "* * * * even now the railway employes, if one may believe the Amalgamated Society of Railway Servants, and their organ, the *Railway Review*, are receiving wages rather less than are paid in private employ, while their hours of labor are frequently much higher than would be tolerated in any private business subject to the jurisdiction of the Arbitration Court." J. E. Le Rossignol, *Quarterly Journal of Economics*, August, 1909.

And even socialist writers are reluctantly forced to complain that, after forty years of experiment, New Zealand has not yet discovered a scientific system of railway rate-making.

> "The persistence of public complaints through all these changes indicates that there is a more radical defect, and that there are deeper questions which the people of New Zealand have not grasped. Even under public ownership the democracy has not yet found out how to make a democratic railway tariff." Newest England, p. 78.

Why this general complaint and lamentation even on the part of the irreconcilable and convinced advocates of the plan New Zealand has so long followed? Did Mr. Lloyd, in the foregoing sentences, put his finger on the real problem, or does it lie in an even deeper and more fundamental defect of public ownership? The present writer believes that the last question must be answered in the affirmative. If railway users, great centers of population, taxpayers and railway employes all complain; if the holders of national bonds and those to whom further issues are annually offered for sale assert that New Zealand's railways are unprofitable and if its credit in the world's centers of finance is seriously questioned, the real explanation is found in a system that capitalizes all its errors and omits the strongest incentive to improvement. The private railway builder puts his fortune at hazard and is spurred on to public service by the hope of profits that are inseparable from public gain. Errors on his part lead inevitably to loss of capital and bankruptcy finally reduces the interest charges on the private property to its reasonable earning capacity—the mistakes of public ownership are seldom eliminated from the public debt, they must be liquidated by taxation or forever draw interest at the expense of taxpayers. Thus higher penalties for mistakes and more numerous mistakes are the inevitable consequences of public ownership. The profits of private owners are, normally, but a fraction of the real gain of private over public ownership. This advantage has been stated, with especial reference to mu-

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nicipal ownership, by a distinguished American economist, Mr. Allen Ripley Foote, in a brilliant and philosophical paragraph, that is at once so accurate, so lucid, and so convincing, that it should live forever among the most splendid and undying assertions of vital truth. With that paragraph, equally applicable to the contrast between public and private railway ownership, this article will be concluded:

> "There is an economic advantage inherent in private ownership that cannot be acquired by a municipality. The operation of this advantage creates the profit for which the company works, and which, when created, belongs to those creating it as justly as the pay for a day's work belongs to the honest workman. This economic advantage ceases to exist when an industry passes from private to municipal ownership. It eludes municipal ownership as surely as the secret of life evades the surgeon's knife. It cannot exist in slavery; it is the offspring of freedom. It is the advantage of personal responsibility, of guaranteeing the saving to the one who saves, the economic advantage of a hope. This advantage stimulates enterprise, induces thoughtful care and inspires energy."

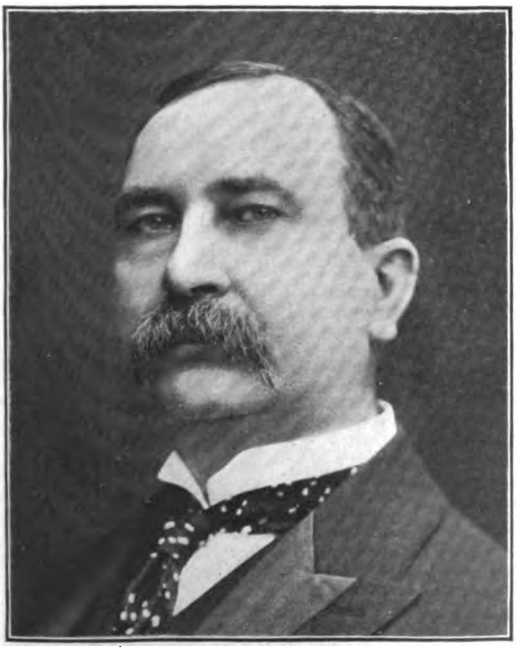
The High Cost of Railroading*

By B. F. YOAKUM,

CHAIRMAN, ST. LOUIS AND SAN FRANCISCO RAILROAD COMPANY.

TALKING about what is costs to live, I have chosen the railways as an illustration, because their prosperity or the reverse means the prosperity or depression of the whole country, and because eighty per cent of the cost of all material bought by the railways goes to labor, and the advance in the cost of doing business in this giant industry may become a menace for the future of the whole country.

We find this subject of high cost the main issue in every wage conference between officers and men. We find it the basis of every strike, every spasm of discontent. We meet it year by year in our coal bills. We struggle with it every time we have to pass on bids and specifications for new cars, new engines or new supplies. We tackle it again whenever we come to figure on building a new line to meet the needs and demands of the people in undeveloped sections, awaiting transportation that development may go forward. It hits us hard again in our tax bills and our payments in personal damage suits.



B. F. YOAKUM,
CHAIRMAN OF THE BOARD OF THE FRISCO LINES.

We come face to face with it in our dealings with the bankers and investors of the world. The era of easy money for railway building, railway improvements, railway expansion has temporarily passed away. To-day, we pay five and one half dollars in interest for the same supply of capital that, in other days on equal security, cost us only four and one-half dollars. When we consider that the railway business, in the nature of things, must always be a tremendous borrower of capital, the importance and the imminence of this question of the cost of capital becomes apparent.

Under present conditions the only sane argument for favoring government ownership lies in the fact that the interest rates would be an average of two per cent less per annum. On the present bonded debt this would amount to saving about two hundred million dollars a year. The service to the public, the development of the country and the freight rate would be worse than on the railway as now managed. While government management of our transportation system would probably be undesirable, the government should, in the interest of the people, do all that it consistently can to aid in the railways' credit in finding new money to carry on improvements and new railway building.

It is difficult to lay the blame for this condition upon anyone in particular, yet the fact that the greatest instrument in our future development is being crippled all thoughtful men must see. Perhaps, in our railway expansion and railway enthusiasm, we have done some things that have accelerated the decline of American railway credit, but the best critics of the world acquit the American railway of any great inflation in their bonded debt, even though they have at times

*From the Santa Fe Magazine.

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criticised expansion in the stocks and junior securities.

These matters that I have cited are some of the facts. There are other facts equally important. I am not a pessimist about American railways. This year we look for apparently abundant crops and to the high class railway freight business that will result throughout the whole year from this abundance. Net earnings will expand and we shall have a new lease of life.

Up to the present time there has been a constant saving in actual cost of moving freight and passengers—through the constant advance in the weight and power of locomotives, through larger cars and through the resulting larger trainloads that have been possible. That saving in expense is reaching its limit. Advance in overhead charges from this time on, according to the judgment of mechanical officers most skilled in these matters of transportation science, must be met without much further aid from the mechanical ways and devices. We have reached a period when much greater economy in transportation seems almost impossible, and if there is to be a much further reduction in cost in conducting transportation it will have to be through curtailment of service to the public.

Although our revenue producing plant has been constantly enlarged, we have also been forced by public demands to meet a hundred other expenses that have produced no return in kind. Aside from the increase in taxes enumerated, more than seventy thousand miles of road have been equipped with block signals; hundreds of miles of track lying in cities and suburbs have been elevated at enormous expense; terminals and stations have been built at great cost; the weight of standard rails has been increased from seventy-five to ninety pounds to the yard to carry the heavier equipment; old stations torn down and modern stations literally by the hundreds have been built to meet the demands of the public; last, but not least, we have spent two hundred million dollars to meet the cost of regulation and supervision of operations by the federal government and the authorities of the states which we serve. These are purely unproductive expenditures. They come with serving the public and are part of the price we have to pay to live and carry on our business. They are overhead charges upon our income fixed by the government.

I write as a railway builder. The railway I helped to plan and helped to build is to-day employing more than fifty thousand men. Their families make up an army of a hundred and fifty thousand people who draw the support and education of their children from our payrolls. In the part of the country where my work has been done railways still are needed. East of the Mississippi River there are less than five thousand acres of land to every mile of railway, but in the West there are more than thirteen thousand acres. Oklahoma is only half supplied with railways. Arkansas is barely prospected, Louisiana is short of transportation properly to develop the state. Texas needs very badly at least ten thousand miles of new line. Arizona, New Mexico, and, in fact, almost all the Western states, need a large amount of railway building in the next ten years. I know that these great regions of the Southwest never can come into their own until they get the transportation facilities they need. I should like to see railway building go forward. It cannot be done in a large way until the future of the railway business is clearer than it is to-day.

This is the result from the standpoint of new construction—namely, that it has come to a temporary halt and must remain stagnant until a solution is reached.

These things must not happen. It is unthinkable that the mass of the American people desires to destroy the greatest of the constructive industries, the building of new railways. It cannot be conceived that the interest of the whole nation will be served by bringing about a condition that tends to injure the world-wide credit of the American railways to a point of saying that we do not want more railways to enable us to go on upbuilding.

A political leader strong enough to formulate a combination constructive and regulative policy will eventually take hold of this most important question and promulgate it. I fully expect to see a resumption of the building of railways, establishing new cities, the opening up of untilled lands, and patient people waiting for railways to develop their lands, coaxing thousands of producers every year into the rich new country in which such work will be carried on. That means that a solution of the present difficulty, which amounts to a deadlock, will be found before it comes to the era of a setback.

Here is need of real constructive statesmanship. This is a problem of pure statesmanship. It is not a matter of political jobbery, of academic theory, of experimental haphazard procedure. It is not a matter that can be settled and laid aside by political chicanery, by the expounding of academic ideas, by the piling up of bureau upon bureau at Washington and commission upon commission throughout the land.

Practically all the legislation, state and federal, on the matter of railways in the past decade has been restrictive, prohibitive, regulative. Some of it has been salutary; some of it has tended to be destructive. What is needed now and what we must have if we are to go forward is in the direction of upbuilding. We have been told in a thousand ways what we must not do and dare not do. The administration of the future must tell us what we can do and show us the way to do it.

How Impressions are Formed.

THE following is taken from the "New York Journal of Commerce":

"'Suspends Freight Advances' is a headline relating to the work of the Interstate Commerce Commission that has become so familiar of late as almost to warrant keeping it standing in type. The suspensions thus effected have usually been crystalized into refusals to permit the advances referred to, to take effect. If the Commission would use somewhat greater discrimination in its action, there would be greater confidence that the policy of holding rates down was being applied with wisdom and in a way that would not damage the carriers' best interests. Recent indications that the Commission is again divided within itself with regard to the general freight rate question show the difficulty of the subject. The so-called 'progressive' element in the body needs to proceed with caution in order that it may not incur the danger of having its policy reversed instead of modified, in consequence of public demand."

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Rail Failures

By C. H. BENJAMIN,

DEAN, SCHOOL OF ENGINEERING, PURDUE UNIVERSITY.

IT would perhaps be too much to say that railway accidents are more numerous than formerly; probably the reverse is true, but owing to the higher speeds and heavier weights, the accidents when they do occur are more disastrous in their effects. In studying the causes of such disasters, we find too often evidences of negligence either on the part of the railroad company or of its employes. The absence of proper signals or the failure on the part of the engine crew to notice them when set, coupled with a tendency on the part of employes to take their chances on cautionary signals and trust to luck that the block may be open before they reach it, has led the traveling public to distrust human care and to urge the use of automatic control. The improper laying out and weak construction of switches and crossovers have also been the cause of many disastrous wrecks. All such accidents may be classed under the head of preventable, that is, a reasonable amount of care and oversight on the part of the road in question coupled with a proper observance of the rules by the employes, would have made them impossible.

There are still remaining, however, a class of accidents due to failure of parts of the brake equipment, to fracture of the wheels or to broken rails, that can not so easily be foreseen or prevented. Proper inspection of the running gear and brake machinery at frequent intervals will do much to prevent wrecks on account of imperfections in the cars themselves. Similar inspection by section men of the permanent way will detect many of the imperfections in the rails and their fastenings. Some, however, of the flaws in steel rails which will sooner or later lead to their destruction are invisible to the naked eye and only make their appearance under stress of circumstances and at serious risk to all who travel over them.

One of the worst railroad accidents in the recent past was that on the Lehigh Valley near Manchester, New York, in August, 1911. Many of the cars were precipitated into the bed of the creek, resulting in a loss of approximately thirty lives and more or less serious injury to sixty people. It seems to be the general opinion that this wreck was due to a fractured rail a few lengths from the entrance to the bridge. An examination of the rail which probably caused the wreck showed evidence of imperfection in the material due to the presence of slag and segregation of materials. The appearance of so-called transverse fissures was probably due to imperfection in the manufacture, but in the opinion of some experts, was produced by continued cold rolling of the rail under excessive wheel pressures. This point is still at issue between the manufacturers and the railroad men. It is doubtful whether the imperfections in this rail could have been detected by external inspection. There is evidence that the supervisors of the road in question had given explicit instructions to the road foremen to watch the rails carefully for any sign of piping or other defects. This is only one of numerous accidents which have been caused by broken rails.

In seeking for the causes which lead to such a

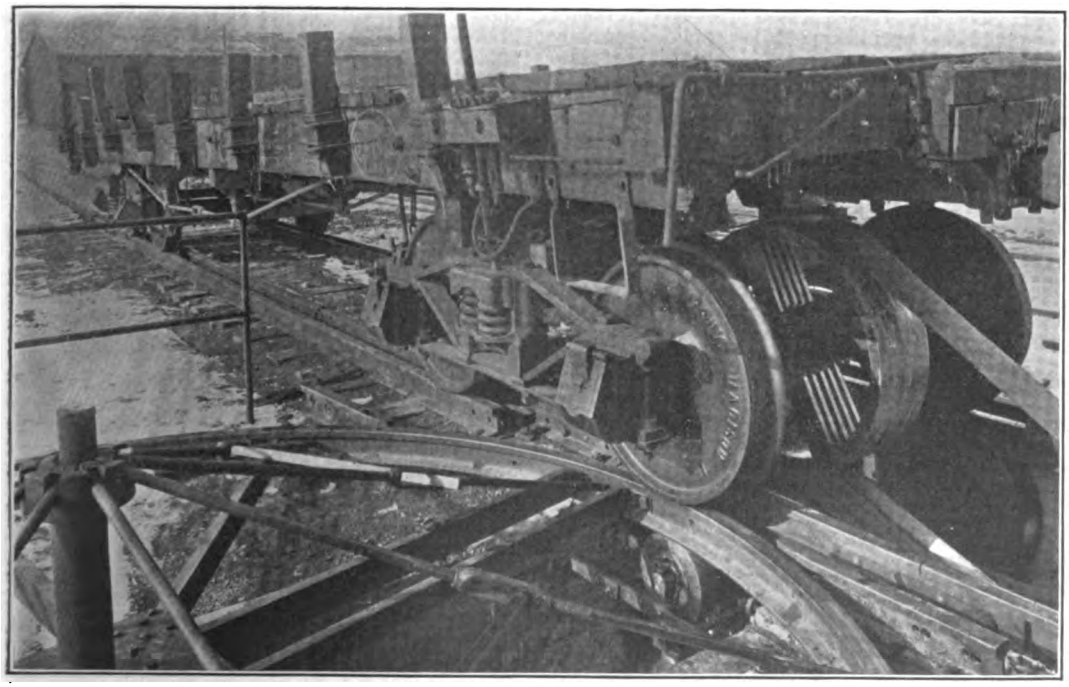

FIGURE 1.—FLAT WHEEL MACHINE, PURDUE UNIVERSITY, WITH CAR IN POSITION.

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state of affairs, it is necessary to consider the development in railroad and car construction during the past twenty-five years. In that time the weights of cars and locomotives have more than doubled and the intensity of wheel pressures has increased enormously. The speeds of trains have probably increased 50 per cent, if not more, in the same time. The weights of rails have been increased to meet the demands upon them from 50 pounds to 80 or 100 pounds per yard, and the tendency has been to make the rails harder so as to reduce the abrasion and wear. The high wheel pressures have made it absolutely necessary to substitute comparatively hard steel for the iron or mild steel formerly used. The improvement in rail making machinery has led to a much higher speed in handling and rolling and this has possibly increased the possibility of imperfect treatment.

Apparently increasing the weight of the rail has not solved the problem completely. It certainly has not diminished the intensity of pressure on the metal at the point of contact and that this pressure has become dangerously high is instanced by the numerous breakages.

Experiments made in the testing laboratories of Purdue University on the area of contact between driving wheel and rail under different pressures, indicate an intensity of pressure above the elastic limit of the rail material. These tests were made by putting a piece of carbon paper between two pieces of tissue paper and inserting this between wheel and rail. The area of contact being readily marked on the one piece of tissue paper was measured with a planimeter. Dividing the total pressure on the wheel by the whole area of contact would give the average pressure, or assuming that the pressure varied uniformly from nothing at the edges to a maximum at the center, half the area would be used as a divisor to give the maximum intensity of pressure. The driver used was a steel one 79 inches in diameter, manufactured by the Schenectady Locomotive Works. A large number of tests with the wheel in different positions as regards the location of crank pin and countershaft showed with loads of from 25,000 to 30,000 pounds an average pressure of over 50,000 pounds per square inch and a maximum pressure of over 100,000 pounds per square inch.

Now, the loads on the drivers of our larger types of engines are from 25,000 to 30,000 pounds per driver. Assuming that this produces for each driver an intensity of pressure between wheel and rail of 100,000 pounds per square inch at the center of contact, we have apparent a possibility of considerable distortion of the metal in the rail by a cold rolling process under such pressure. Experiments have shown that it is rather the rail than the wheel which yields, probably due to the fact that it is not so well supported. If we add to this a succession of blows due to irregularities and imperfections in wheel and rail, we have a condition of affairs which would certainly invite trouble. While the load per wheed of the freight cars in general use is not so great, the wheel itself is much less in diameter and would give a smaller area of contact and more pressure per pound of load.

Irregularities due to eccentricity of wheels, to uneven wear, or to flat spots are an additional cause of rail failure. One prominent road during the past winter broke over six hundred rails with one flat wheel, and other instances might be cited nearly as startling.

The 2½-inch limit for flat spots was adopted in 1878 when the loads and speeds were very much less than at present. Many roads have adopted a smaller limit for passenger service, but there is a general uncertainty as to just how much danger arises from flat wheels. The apparatus recently installed at Purdue University and illustrated in Figure 1 is intended to throw some light on this question. The car is shown in position with one of the axles of forward truck driven by a motor and belt. One wheel of this axle rests upon an idler and the other drives a circular rail rotating on a horizontal plane and supported by ball bearings. The pressure of the wheel is transmitted through the rail to a hydraulic plunger resting on oil and is measured by an indicator of the ordinary type. Tests of various widths of flat spot and various speeds and loads will undoubtedly throw much light on this problem. Arrangements are made for calibrating the apparatus in position by means of a drop press.

Another cause of danger in winter time is the effect of low temperatures on the brittleness of steel rails. That there is such effect can not be doubted by those who have studied the excessive number of rail failures during the unusually severe weather of last year. Just how much the ductility of a rail is affected by different degrees of temperature is uncertain. It is proposed this winter to make a series of tests on rails in various atmospheric temperatures under the Master Car Builders' drop press at Purdue University. This apparatus is illustrated in Figure 2. A drop whose weight can be varied for different experiments and having a maximum fall of 50 feet is to be used for this work. The influence of high speed can not be disregarded since the higher the speed of the train, the more frequently occur the reversals of stress as the wheel passes over the tie and then over the interval between ties. Observations on the New York Central Lines have shown that breakages are more frequent on down grades where the speed is high than on upgrades where the speed is necessarily reduced.

The chemical composition of the rails, of course, has much to do with the matter, and an excess of either carbon or phosphorus is pretty sure to result in disaster. Increasing the amount of carbon in the steel so as to give a rail which is harder and will wear longer necessarily increases the brittleness of the rail and reduces its ductility. Experiments made by the New York Central Lines show a decided improvement from the use of open hearth rails where a special effort has been made to increase the ductility by keeping the amount of carbon low and the phosphorus below .04.

Inspection of broken rails has shown the probability of some of them being injured by the straightening processes in the mill. The severity of the stress required to take the kinks out of the rail when it is comparatively cold is sufficient, in many cases, to injure the material.

All the evidence so far obtained tends to show that the open hearth rail as a rule is more reliable than the Bessemer rail. This is naturally to be expected from the more deliberate nature of the process and the better opportunity for determining the composition accurately. Tests made of rail specimens at the mill while valuable in a way are more or less inconclusive unless it is assumed that the rails are homogeneous. Unfortunately the fact that one end of one rail will not break under a certain blow is no evidence that another rail will not or that the other end of the same rail

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will stand such treatment. A much better criterion is a correct and careful record of all the rail failures in service by all the railroads, coupled with a history of the broken rails from the time of their rolling to the date of failure. Such statistics are being compiled at the present time by the American Railway Engineering Association, printed forms and instructions being furnished the different railroads so that the reports may be uniform in character. The deductions of the Rail Committee of this Association as published in the report for July, 1912, are given verbatim. I would call particular attention to paragraphs 2 and 4:

(1) The statistics are for all roads and do not take into consideration differences in tonnage and physical characteristics, but are valuable as showing averages derived from studying the performance of large quantities of rail from different mills. The results may be considered as fairly representing the performance of the different mills.

(2) The wide variation in results shown must be due to a great extent to a lack of uniformity in the product of any individual mill.

(3) Wide variation from the specified chemistry for rails has been found in the product as furnished by the mills. If a comparatively low carbon has been specified and a higher carbon material has been furnished by the mills than supposed, then erroneous deductions may be drawn unless the chemistry of the rail furnished is accurately determined. There should be greater insistence in the future in seeing that the specified requirements are complied with, and it may be necessary to take chemical tests from the finished product more frequently than heretofore, as well as from the sample test ingots.

(4) The statistics show in many cases that the average performance of the heavier sections is not so good as the average performance of the lighter sections.

(5) The mill people have furnished a long list of defects found in track and track maintenance. It is to be noted that, in many cases, the highest rate of failure of rails is found on roads with a reputation for a high state of maintenance. Head failures, such as split and crushed heads, predominate. The Committee is not willing to admit that such failures are the result of imperfect track conditions.

(6) The open-hearth rail, as a whole, shows a lower rate of failure than the Bessemer, but the average rate of failure for open-hearth is higher this year than last year, while the Bessemer shows lower rate this year than shown last year. Can it be that, as the age increases, the rate of failure with open-hearth rail will increase so as to approach the Bessemer figures?

(7) The statistics indicate that the material in the top of the ingot must be of a poorer quality than that lower down, and that, in many cases, sufficient discard has not been made from the top of the ingot.

It is evident from a study of the statistics furnished by this Committee that the most conspicuous fact is the lack of uniformity of product either of different mills or of different lots from the same mill. Until this condition is remedied, we can not look for any permanent improvement.

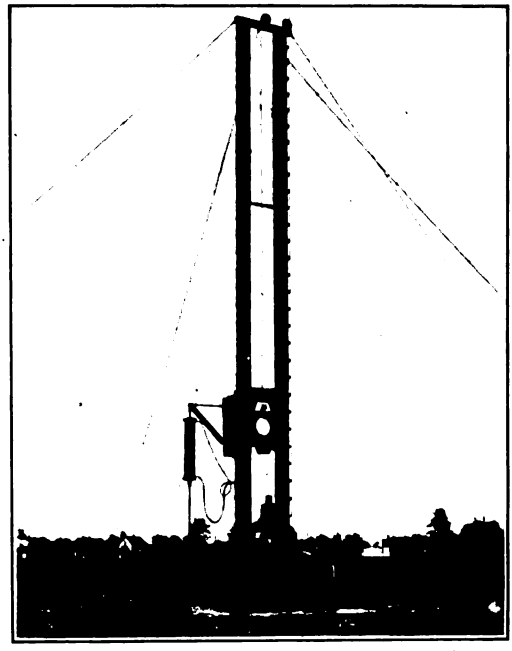

FIGURE 2.—MASTER CAR BUILDERS' DROP PRESS, PURDUE UNIVERSITY.

As was stated in the report of the same committee for the previous year, "At the present time the quality of the material is so variable that neither minor differences in section nor in chemical composition have serious weight." Of the total number of rails reported for three years ending in 1911, the character and failure was as follows:

Broken	825
Head failure	1772
Web failure	330
Face failure	263

It may be seen from these figures that failure of the head is the most common type with the broken rail coming next. As a rule, it is only the broken rail which causes serious accident as the other failures are more or less gradual and may be detected in time.

The most common cause of rail failure is the so-called piped head or web due to the presence of occluded gases or slag in the top of the ingot, while the more frequent cause of broken rails is probably the segregation of different materials in the head of the rail. It is entirely possible, however, that a rail may break simply by reason of the presence of too much carbon or phosphorus.

In making these criticisms, I would wish to disclaim any intention of criticising either the mills or the railroads. I believe that the efforts of the better class of manufacturers and the more far-seeing and energetic of the railroad men are earnestly directed towards a study and correction of this evil; that there has already been a great improvement in conditions at some mills and on some roads. Undoubtedly the tabulation of statistics by the railroads of the country and the tracing up of defective rails to their origin will give a mass of material which can be studied with great profit by all who are interested.

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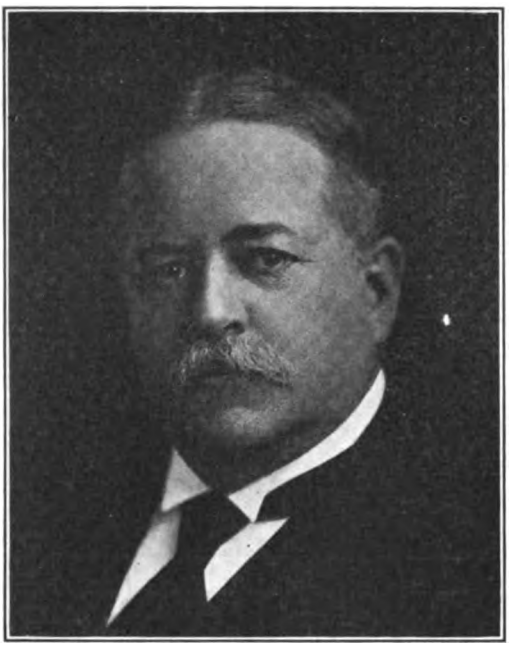
Personal



JULIUS KRUTTSCHNITT.

MR. KRUTTSCHNITT, who, on January 13th, became chairman of the Board and Executive Committee of the Southern Pacific Company, is a native of New Orleans, where he was born July 30, 1854. His parents were John and Penina (Benjamin) Kruttschnitt, the father being of German descent, while the mother's ancestors were early settlers of South Carolina.

After graduation from Washington and Lee University, from which he received the degree of civil engineer with the class of 1873, Mr. Kruttschnitt taught for five years in McDonogh School, located near Baltimore, Maryland.

Immediately after leaving McDonogh, in 1878, he entered the service of the Morgan's Louisiana & Texas Railroad Company, and became engineer in charge of construction. On completion of that line, in 1880, he became its roadmaster, and up to 1885 had filled the positions of general roadmaster and chief engineer, and superintendent and chief engineer, being then advanced to the position of assistant general manager of the Southern Pacific Company's Atlantic System, embracing all lines and territory east of El Paso, Texas. He was general manager of the system just named from 1889 to 1895, and was then advanced to the position of general manager of all Southern Pacific Company lines, with headquarters at San Francisco. April 7, 1898, he became fourth vice-president of the Southern Pacific Company, and from 1901 to 1904 was assistant to president.

On April 1, 1904, he was promoted to the position of director of maintenance and operation of the Union Pacific and Southern Pacific lines, with headquarters at Chicago, Illinois, until December, 1911, when headquarters were transferred to New York City.

Mr. Kruttschnitt is also a director of the Chicago & Alton Railroad and president of the Union Pacific Coal Company. He is president of the American Railway Association, an organization that comprises in its membership all roads of importance operating in the United States. He has recently resigned as a director of the Union Pacific System.

Robert Garrett.

AT a meeting of the Baltimore and Ohio board of directors, held last month in New York, Samuel Rea, the new president of the Pennsylvania Railroad, who had been one of the Pennsylvania's representatives on the board for the last 12 years, retired and Robert Garrett, grandson of the master builder of the road, was chosen to succeed him.

The statement was made that because of Mr. Rea's recent election to the presidency of the Pennsylvania, and the consequent increasing tax on his time and attention, he felt it necessary to be relieved and therefore resigned.

The retirement of Mr. Rea from the board, leaves the Pennsylvania with only two seats.

The election of Mr. Garrett again connects the Garretts with the management of the property that was built by the Garretts from small beginnings to one of the greatest of the country's railroad systems. John W. Garrett, grandfather of the present Robert Garrett was the creator of the Baltimore and Ohio as a real railroad system. He was one of the great creative railroad geniuses and perhaps the foremost pioneer in the American railroad field. His conception was the largest and his methods of carrying it out the most masterful.

ROBERT GARRETT,
RECENTLY ELECTED TO THE BOARD OF DIRECTORS, BALTIMORE AND OHIO RAILROAD.

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John W. Garrett's first official connection with the road was when he was a member of the firm of Robert Garrett & Sons, established by his father, Robert Garrett, of which firm his grandson and the great-grandson of the founder, is now the head. It was in 1854 that John W. Garrett was appointed chairman of a special committee of stockholders, formed to reorganize the finances of the company.

Three years later he was elected president of the road, and remained in that position until the time of his death in 1884.

Two months after his death his son, Robert Garrett, uncle of the newly elected director, who was first vice-president, was elected to the presidency. During Robert Garrett's administration the company's lines were extended north to Philadelphia and control of terminal properties on Staten Island was secured, as well as various lines in the West. Mr. Garrett resigned in 1887.

Some years later the receivership took place, after which the Garretts lost control of the property.

Silver Service for Mr. McCrea.

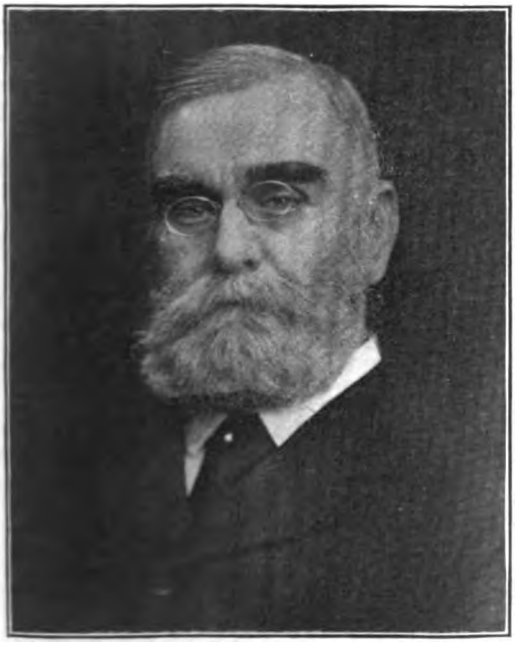
ON the last day of the old year the retiring president of the Pennsylvania Railroad, James McCrea, was presented with a service of silver by the Board of Directors of the company. Included in the service is a large platter on which is engraved resolutions passed by the Board of Directors of the company.

The resolutions set forth the career of Mr. McCrea and extol his forty-eight years' service and refer in the most complimentary way to his connection with the Pennsylvania Railroad Company from its humble beginnings to his important service at the head of the company, during the time of the greatest expansion in its history when many large undertakings were in the process of completion and when the country at large was reacting from a period of unprecedented prosperity and development. The resolutions in part continue:

"The board deem it a privilege to make this record of their profound appreciation of the able and valuable service rendered by Mr. McCrea during his unusually long term of service. From rodman to president he has served the company with signal ability and untiring zeal for its welfare. The lines West of Pittsburgh, upon which he spent about half of his active life, are a monument of his sagacious and progressive management, under which, from crude beginnings, they have been rounded into a well-knit and thoroughly organized system, profitable to their stockholders and efficiently meeting the requirements of the communities which they serve. The history of his service to the company is the testimony of its value, and the record of his achievement his title to a place among the ablest railroad executives of the country."

Benjamin F. Bush.

A REARRANGEMENT of executive and other forces of the Gould lines went into effect on January 1, and Benjamin F. Bush became president of the Missouri Pacific, Denver & Rio Grande, Iron Mountain, Western Pacific, Texas & Pacific and International & Great Northern, and J. M. Johnson, of St. Louis, was made vice-president in charge of traffic. Each subsidiary line has its individual traffic manager responsible to Vice-President Johnson. George Gould is chairman of the executive board for all the lines.



JAMES MCCREA,

Who Was Presented with a Silver Service by His Associates on the Last Day of His Active Service as President of the Pennsylvania Railroad.

BENJAMIN F. BUSH,

Whose Authority as President Has Been Extended Over the Entire Gould System.

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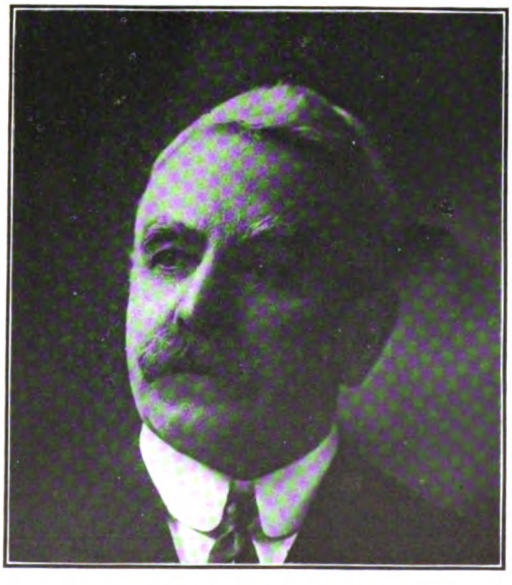
This plan puts Mr. Bush at the head of a railroad system embracing transcontinental, Gulf and Appalachian trunk lines with 13,844.12 miles of rails under his control. The next largest system is that of the New York Central Lines which has 12,817 miles of road.

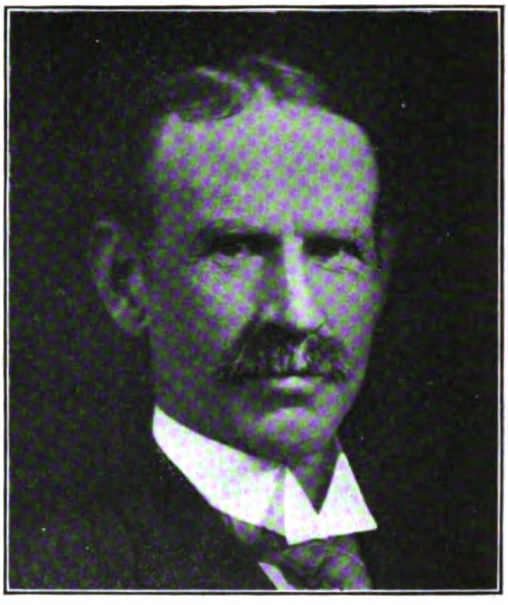
Mr. Bush was with the Gould lines as general fuel agent when he was called to the presidency of the Western Maryland and had proven his ability. He was president and later receiver of the Western Maryland, reorganizing that property.

Tilghman B. Koons.

TILGHMAN B. KOONS, recently elected vice-president of the Central Railway of New Jersey, was born May 29, 1852 at Treichlers, Pa., educated in public schools and special course of some years under Prof. Atwater, afterwards took business course in Eastman's School, Poughkeepsie, N. Y., during vacation and spare moments studied telegraphy. Entered railway service as telegraph operator D. L. & W. R. R., 1872, shortly thereafter or early in 1873 took service with Lehigh Valley R. R. as clerk in general freight agent's office, Mauch Chunk, Pa., remained with said company until 1879, when, due to impairment of health, resigned. In latter part of 1880 entered employ of Central Railroad Company of New Jersey as soliciting freight agent with headquarters at Elmira, N. Y., covering territory north and west. From 1887 to 1898 successively filled position of general agent, division freight agent and division freight and passenger agent with office at Mauch Chunk, Pa. September, 1898, assumed position of general freight agent with office 143 Liberty Street, New York. On December 23, 1902, was appointed freight traffic manager, holding this position until January 1, 1913, when elected vice-president and freight traffic manager, making continuous service with the Central Railroad of New Jersey of over 33 years.



TILGHMAN B. KOONS,



G. L. PECK,

Recently Elected Fifth Vice-President of the Pennsylvania Lines West of Pittsburgh.

George L. Peck.

George L. Peck, who on January 1st, was promoted to the newly created position of fifth vice-president of the Pennsylvania Lines West of Pittsburgh, was born July 10, 1858, at Sandusky, Ohio. His railroad service began in 1873 as a messenger boy on the Toledo Division of the Pennsylvania Company. Mr. Peck's first promotion was to the position of telegraph operator, which he held from 1874 to 1876. From the latter date to 1881 he was a train despatcher in the service of the Pennsylvania Company. From 1881 to 1882, Mr. Peck held the same position on the Columbus, Hocking Valley and Toledo Railway.

In 1882, Mr. Peck was made trainmaster on the Toledo Division of the Pennsylvania Company and from 1894 to January 15, 1896, was superintendent of the Richmond Division of the Pittsburgh, Cincinnati, Chicago and St. Louis Railway. He held the position of superintendent of the Pittsburgh Division of the same road from January 15, 1896, to January 1, 1901, when he was made general superintendent of the Southwest System of the Pennsylvania Lines West of Pittsburgh.

On June 7, 1901, Mr. Peck was promoted to the position of general manager of the Pennsylvania Lines West of Pittsburgh.

Agnew T. Dice.

AGNEW T. DICE, until recently, general manager of the Philadelphia and Reading Railway Company, on January 1, 1913, became vice-president and general manager of that company with headquarters at Reading, Penna. He was born on November 2, 1862, at Scotland, Penna., and was educated at Chambersburg Academy.

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AGNEW T. DICE,
Recently Elected Vice-President of the Philadelphia and Reading Railway.

He began railway work on July 17, 1881, in the engineering and maintenance of way department of the Pennsylvania Railroad, remaining in the service of that road until January, 1892, when he went to the New York Central and Hudson River as superintendent of signals. Subsequently, he was made assistant superintendent of the Hudson Division of that road, which place he held until April 1, 1894. At that time he resigned and went to the "Reading," as superintendent of the Atlantic City Railroad. January 1, 1897, he was made assistant superintendent of the Reading Division of the Philadelphia and Reading, and February 1, 1897, was appointed superintendent of the Shamokin Division. May 1, 1903, he was promoted to general superintendent, and on January 1, 1910, was made general manager.

Mr. Dice is a member of the Conference Committee of Managers, representing Eastern railroads. now negotiating with the firemen, on the subject of wages, and of the Committee of Maintenance of the American Railway Association. He is also a member of the New York Railway Club.

J. M. Fitzgerald.

J. M. Fitzgerald, who became president of the Western Maryland Railway on January 1st, was born near Harrisburg, Pa., on April 26, 1877.

Mr. Fitzgerald received his early education in the public schools of Philadelphia. He was then admitted to the School of Technology in that city, where he took a course in civil and mining engineering.

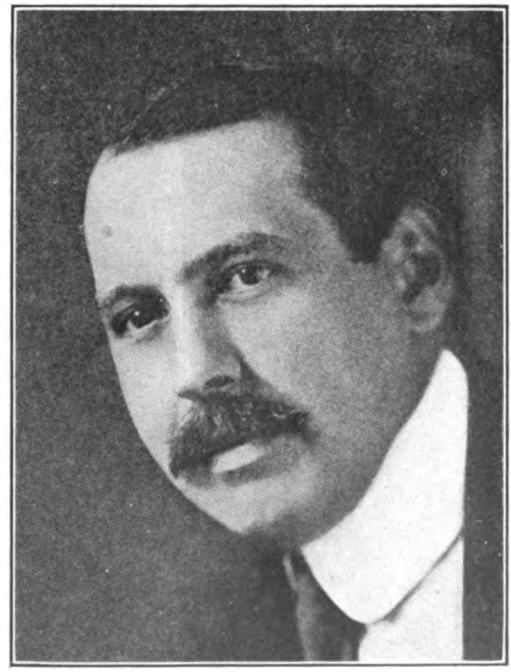
In 1894 he began his railroad career with the Columbus, Sandusky and Hocking Railroad in their general offices at Columbus, Ohio. Since then he has risen rapidly in the railway service. He was made purchasing clerk and general storekeeper in August, 1896. In March of the following year, he accepted a position with the Choctaw, Oklahoma and Gulf R. R., at South McAlester, I. T., in their engineering department, where he remained for about two years in railroad construction and maintenance of way work.

He went to Bristol, Va., in August, 1898, as assistant general manager of the Virginia and Southwestern R. R., and was given charge of the operating department. The same year he was made assistant to the vice-president of the Virginia Iron, Coal and Coke Company. In April, 1900, the mining operations of the Empire Steel and Iron Company were placed in his charge. Four years later he controlled the mining operations of B. Nicoll & Company. He was made vice-president of the Pittsburgh Terminal R. R. and Coal Company in June, 1909. On April 1, 1912, he was elected president of the Davis Coal and Coke Company. He was elected vice-president of the Western Maryland R. R. on October 16, 1912, and on November 8, 1912, was elected president to take effect January 1, 1913.

M. C. Kennedy.

At a meeting of the directors of the Cumberland Valley Railroad Co., M. C. Kennedy was elected president and Samuel Rea was elected vice-president.

Mr. Kennedy has been vice-president and general superintendent of the company since the death of his father several years ago, who was the president of the company. Since the death of the elder Mr. Kennedy, Presidents Cassatt and McCrea have served as presidents of the Cumberland Valley.



J M. FITZGERALD,
The New President of the Western Maryland.

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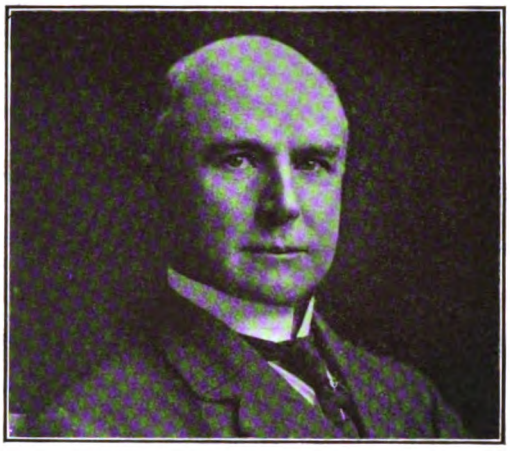

M. C. KENNEDY,
Who Succeeds James McCrea as President of the Cumberland Valley.

The new president, Mr. Kennedy, has been connected with the road for many years, and as vice-president and general superintendent he has conducted the company most successfully. His thorough knowledge of the property, and of the transportation requirements of the people of the Cumberland Valley and his intimate acquaintance with them fit him for his new position.

President Kennedy was born on March 10th, 1862, at Chambersburg, Pa., where he spent his early school days. In 1880 he was graduated from the scientific department of Phillips Academy of Andover, Mass., and in 1884 from the John C. Green School of Science, of Princeton University, with the degree of civil engineer. Following his graduation he went to Wyoming, where he engaged in cattle ranching on the Powder River.

In 1887, Mr. Kennedy moved to Junction City, Kansas, and organized the banking firm of Kenedy & Kennedy. He contiued in that business there until June, 1889, when he entered the service of the Cumberland Valley Railroad Company, as assistant to the president, and in 1892, was elected vice-president. On January 1, 1903, due to the largely increased traffic of the railroad, Mr. Kennedy was placed in entire charge of its operation, and in addition to his duties as vice-president, he was elected general superintendent.

Assistants for President Rea.

SAMUEL REA, the newly elected president of the Pennsylvania, has been given three additional assistants. They are A. J. County, former assistant to Mr. Rea, as vice-president, made special assistant to the president. O. J. DeRousse, chief clerk to President McCrea, appointed general assistant. Ivy L. Lee, for three years the manager of the publicity bureau of the road, elected executive assistant. These changes went into effect January 1st.

This action gives the president five assistants, as W. A. Patton and E. T. Postlethwaite are already discharging duties in that capacity. The first named has acted as an assistant to the last four presidents of that road, starting under President Roberts and remaining under Presidents Thomson, Cassatt and McCrea.

A. J. County.

Albert John County ranks among the most successful younger men who have worked their way to the front. He is a native of Dublin, Ireland, where he was born August 1, 1871. He received his early education in the schools of that city, and later, upon coming to this country, was graduated from the Wharton School of Finance, University of Pennsylvania, with the degree of Bachelor of Science in Economics. Mr. County's railroad experience began in July, 1885, with the Great Southern & Western Rail-

IVY L. LEE.

A. J. COUNTY.

OSWALD J. DEROUSSE.

THE THREE NEW ASSISTANTS TO PRESIDENT REA OF THE PENNSYLVANIA RAILROAD.

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way Company, of Ireland, in its purchasing department.

On November 20, 1890, Mr. County entered the service of the Pennsylvania Railroad Company as clerk in the secretary's department; in June, 1898, he was appointed chief clerk, and on December 1, 1900, assistant to the secretary.

Between June 1, 1906, and May 7, 1912, he served as assistant to Vice-President Rea under the respective titles of assistant to the third vice-president, assistant to the second vice-president and assistant to the first vice-president.

On May 8, 1912, when the practice of designating the vice-presidents numerically was discontinued, Mr. County was appointed assistant to the vice-president.

Oswald J. DeRousse.

Oswald J. DeRousse was born February 18, 1867. He entered the service of the Pennsylvania Railroad Company on July 18, 1884 as a telegraph operator in the old general offices on Fourth Street. On June 28, 1885, he was transferred to the service of the New York, Philadelphia & Norfolk Railroad Company, in the office of A. J. Cassatt, where he remained until March, 1897, when he was elected secretary of that company.

Upon the election of Mr. Cassatt to the presidency of the Pennsylvania, on June 9, 1899. Mr. DeRousse was transferred to Broad Street Station and appointed chief clerk of the office of the president. He has filled this office up to the time of his present appointment.

Ivy L. Lee.

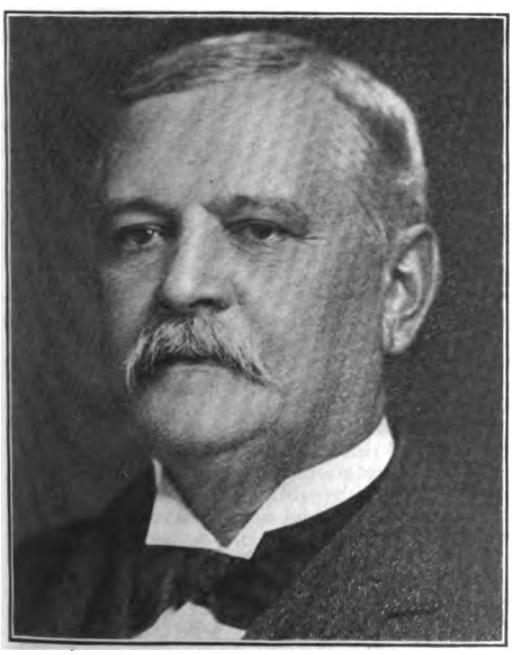
Ivy L. Lee was born at Cedartown, Georgia, July 16, 1877. He is a graduate of Princeton University and has taken post graduate work at Harvard and Columbia Universities.

For several years, Mr. Lee served on the Editorial Staff of a number of New York newspapers. From 1905 to 1907 he was the press representative for the anthracite coal operators and other corporations. In 1906-7 he had charge of the publicity for the Pennsylvania Railroad and in 1908 established the Publicity Bureau of the Company. In 1909, he resigned from the service of the Pennsylvania Railroad and became general European manager for Harris, Winthrop & Co., bankers. He returned to the Company on December 1, 1912, and was appointed executive assistant.

Obituary

Roswell Miller.

ROSWELL MILLER, who died in New York on January 3d, belonged to the older generation of railroad executives. Mr. Miller was president of the Chicago, Milwaukee & St. Paul from 1888 to 1899, and since 1899 to his death, was chairman of the board of directors. Under his management little or no new territory was developed by the St. Paul, but the property was improved, intensively developed and raised to the first rank among the best managed railroads in the west. Under his guidance the road commanded to an unusual extent the loyalty of its shippers and the traveling public. His ideals of organization were of a high character and were reflected in the discipline and service of the road. Mr. Miller was born in Hartford, Pa., on October 28, 1843. His early railroad experience was on the Cairo & Vincennes, of which he was at one time secretary and later general superintendent. In May, 1882, he was made vice-president and treasurer of the Chicago & Western Indiana. He had valuable early financial training, having worked in the office of J. P. Morgan & Co., in New York. In April, 1883, he was made assistant to the general manager of the Chicago, Milwaukee & St. Paul, and in the following year the general manager's health failed and Mr. Miller was made assistant general manager, with much of the duties and responsibilities of the general manager's office on his shoulders. In April, 1885, the general manager died and Mr. Miller succeeded him. Three years later Alexander Mitchell, president of the St. Paul, died, and Mr. Miller was elected president, retaining for two years the general managership. In 1890 a general manager was appointed who took over a part of Mr. Miller's duties; but the development of the St. Paul and the success of its management were due directly to Mr. Miller up to the time of his ill health in 1899.



ROSWELL MILLER.

The extension of the St. Paul to the Pacific Coast was in contrast to Mr. Miller's consistent policy of development of the existing property without extension during the time he was president. This Pacific Coast extension was financed through the issue of stock, and when it became evident in 1910 that the St. Paul was failing to earn the seven per cent. dividend that was being paid on the increased capitalization, Mr. Miller was one of the directors who first recognized and acquiesced in the necessity for reducing the dividend rate.

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Financial

Favorable Railway Earnings.

RETURNS for November from 50 representative railroads operating in all sections of the country, with a mileage of approximately 160,000, show an increase in gross earnings of 13.2 per cent., and an increase in net earnings of 16.4 per cent. This compares with an increase in gross of 13.7 per cent., and an increase in net of 17.1 per cent. in October. All sections of the country show increased railroad earnings, the New England group of roads being the only one showing a decline.

A most encouraging return is made by the St. Paul. For the five months ending November 30th, the earnings on the common stock were approximately 6.4 per cent.; for the entire fiscal year, ending June 30th last, only about 2 per cent. was earned. For November the gain in gross earnings of the system was $1,862,063 and for the five months the increase was $7,110.327. Another company which has caused some anxiety is the Missouri Pacific. In only one month of the fiscal year ending June 30th, this company earned as high as $5,000,000 gross. In the current fiscal year there has been no month in which gross earnings did not exceed $5,000,000. The gain in gross earnings for the five months ending November is 14.1 per cent. Of this increase in gross earnings the management was able to save $2,440,000 for net earnings, as the result of more economical operation, made possible by improvements and new equipment.

The Wabash Railroad, although still in the hands of a receiver, is making an excellent showing. For December the gross revenues were $2,684,502, a gain of 10.6 per cent. The half year's gross earnings are at an annual rate of over $33,700,000, and it is reasonably certain that the earnings for the full twelve months will be largest in the history of the company.

Another company showing marked improvement is the Rock Island which begins the second half of its fiscal year with a gain in net earnings after taxes, of over $1,600,000. In view of the rumors which were in circulation nine months ago, of possible difficulty in the finances of this company, this showing is remarkable. It was made, moreover, in the face of $950,000 more spent in maintenance than during the same period of last year.

This general improvement in the condition of railroad companies which have had some difficulty in getting along during the hard times of 1911, clearly indicate the remarkable improvement in the general railroad situation. Investors are also attracted to the stocks of sound railroad companies because of the comparatively high yield which they now show at present prices. Atchison, for example, is showing 5.76 per cent. to the investor; Baltimore & Ohio, 5.71 per cent.; Northern Pacific, 5.93 per cent.; Southern Pacific, 5.71 per cent., and Union Pacific. 6.36 per cent. The dividends of these companies are well secured on the basis of current earnings. This is especially true of Union Pacific which has recently been under a cloud on account of its enforced separation from the Southern Pacific. During the last fiscal year, however, this company earned a surplus exclusive of the dividends earned from its holdings of Southern Pacific stock exceeding the 10 per cent. dividends paid to the common stockholder.

It should not be forgotten, however, that this considerable improvement in the finances of American railroads, is based upon a comparison of this year with a period of the worst operating results American railroads have experienced in ten years. The weather conditions of last winter were so extraordinary as to make serious reductions in the earnings of all railroads in the Northern States.

Large Security Issues Expected.

ACCOMPANYING this improvement in railroad earnings is the announcement of plans for large issues of securities, especially bonds. The railroad bond market has been depressed for three years. Nineteen-nine was the record year with $1,139,000,000 issued. In 1912, $682,000,000 of bonds, most of them secured by railroad property, were put out. On the other hand, the industrial corporations, which mainly rely upon preferred stock issues, have found a ready market. The total issues of stocks last year was $1,037,000,000, most of this consisting of the cumulative preferred stock of industrial corporations. Of railroad bonds, 1911 showed a decrease in issue of $163,000,000. Nineteen-twelve was also distinguished by large issues of short term notes. During the two years, 1911 and 1912, railroad corporations put out $674,000,000 of these deferred obligations, a conclusive indication of the weakness in the market for long term bonds.

According to the announced plans, the next two months will see a large amount of railroad financing. The first of these new quotations will be an issue of $63,250,000 of 4½ per cent. convertible bonds which have been authorized by the Board of Directors of the Baltimore & Ohio and which have been offered to common and preferred stockholders at 95½. The St. Paul directors have offered their stockholders the privilege of subscribing at par for about $14,000,000 of 4½ per cent. convertible bonds, and the Southern Railway has sold $5,000,000 of 5 per cent. notes.

Investing bankers have been greatly encouraged by the reception given these issues, which they are inclined to explain, in part, at least, by the popular distrust of the New York Stock Exchange. At the same time it is conceded that railroads will not soon again be able to borrow money as they have in the past, on a 4 per cent. basis. Instead the method of offering securities on preferential terms to stockholders will probably be followed, so that what the stockholder loses in higher fixed charges, he will gain in preferential subscription if he wishes to invest more capital in his company.

Railway Mergers.

NEW mergers have been announced. The option given to the Missouri Pacific on the stock of the International and Great Northern has expired but it is expected that it will be renewed. There have been reports

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of a possible sale of the Michigan Central by New York Central owing to the recent decision by the Supreme Court in the Union Pacific case. This has not, however, been confirmed. The Chicago, Milwaukee & St. Paul will soon take over the entire property and assets of the Chicago, Milwaukee & Puget Sound Railroad over which it has exercised control for a number of years. The entire capital stock of the Puget Sound Railroad is owned by the St. Paul. This consolidation is effective from January 1st.

The Southern Pacific has succeeded the Atchison, Topeka & Santa Fe in control of the Northwestern Pacific. Each of these companies has an equal share of the stock of the Northwestern Pacific, and from this time on will alternate annually in its control.

The Stock Market.

THE stock market situation during January has not been satisfactory. Toward the middle of the month quotations generally declined, reaching in some cases the lowest levels of the year. The transactions were small and little outside interest was manifested. The most satisfactory explanation of the decline is found in the political situation. The utterances of the President-elect have been far from reassuring to the financial community. Wide-spread irritation, disgust and astonishment has been expressed over certain public utterances of the President-elect, notably a speech at the dinner of the Chicago Commercial Club. President-elect Wilson, in the words of the Commercial and Financial Chronicle, "thinks he has a mission to perform and that it is his duty to rescue the people of this country from the slavery of an industrial and economic system of whose hideousness and thraldom the poor people themselves in their amazing ignorance, seem to be all unconscious. With a frankness that does him credit, he admits that he knows nothing about business himself; nevertheless, he does not hesitate to stand in judgment upon business men, and he accepts as gospel truth all the false and malicious statements that the politicians have been circulating for their own selfish ends."

Governor Wilson's Corporation Bills.

IN the bills introduced in the New Jersey legislature for the further regulation of business, President-elect Wilson enters the lists against the corporations. Radical changes in the corporation act of New Jersey have been proposed in seven bills which have been sent to the New Jersey legislature at his instigation. These bills are designed to prohibit, hereafter, the formation of holding companies, the issuance of stocks not based on bona fide values, and the formation of combinations for the purpose of restraining trade, and creating monopolies.

The first of these bills defines trusts and expressly prohibits the organization of monopolies. These bills set forth in great detail the limitation of the future activities of New Jersey corporations and the conditions under which new corporations may be formed. Prison penalties are provided which make the directors of corporations ordering or doing any of the prohibited acts guilty as individuals and provides for the revocation of the charter of the offending corporation. The penalty is imprisonment not exceeding three years or a fine not exceeding one thousand dollars or both in the discretion of the court.

Another act provides that when stock is issued by a corporation in payment for property purchased, the purchasing corporation must receive in property or stock what the same is reasonably worth in money at a fair bona fide valuation. This act permits a corporation to extend its business by the purchase of property of other corporations, including the stock of such corporations. Statements of such purchases shall be filed in the office of the Secretary of State and if false in any material respect, all the officials who signed the same, or participated in making it, with knowledge, shall be guilty of a misdemeanor.

Another act provides that no corporation organized under the laws of New Jersey shall purchase, hold, sell or assign a debt created by any other corporation, nor as owner of such stock exercise any of the rights of ownership or vote on any such stock. This act does not apply to corporations already in existence.

All mergers of corporations are made subject to the decision of the Public Utilities Commission. A final amendment to the corporation law makes it a misdemeanor for any corporation, firm or persons, to discriminate between different sections, communities or cities of the State by selling any lower than that at which the same commodity is sold in another section, after due allowance for additional cost of transportation, when the intention is to secure a monopoly or drive a competitor out of business.

These bills, while formidable in appearance, are not believed to seriously threaten the prosperity of any New Jersey corporation, even if they are enacted into law, which is more than doubtful.

It is also noteworthy that the constitution of the present corporations is left unchanged. New Jersey, for a number of years, has enjoyed a monopoly of the easy incorporation of holding companies by which most of the large mergers of industrial and public utility corporations have been brought about. The aggregate capital stock of the companies incorporated in New Jersey, most of which do business with other States, according to the report of the State Board of Assessors in 1911, was nearly $8,000,000,000. The amount of tax paid to the State annually on this capital stock is $2,691,891. Many other States have since followed the example of New Jersey because of the large profits available from the amendment of their incorporation laws and it is now possible to secure substantially the same privileges in many other commonwealths.

We do not believe that the agitation against corporations of which the facts just summarized represent, in our opinion, a culmination, will much longer continue. Railroad investment has been paralyzed by agitation and regulation. It is hardly believable that the same discouraging influence will be extended over the whole field of investments. At present, however, the advocates of regulation are in the saddle and they are riding hard. It is to be hoped, in the interest of the permanent prosperity of the American people, that they are riding for a fall.

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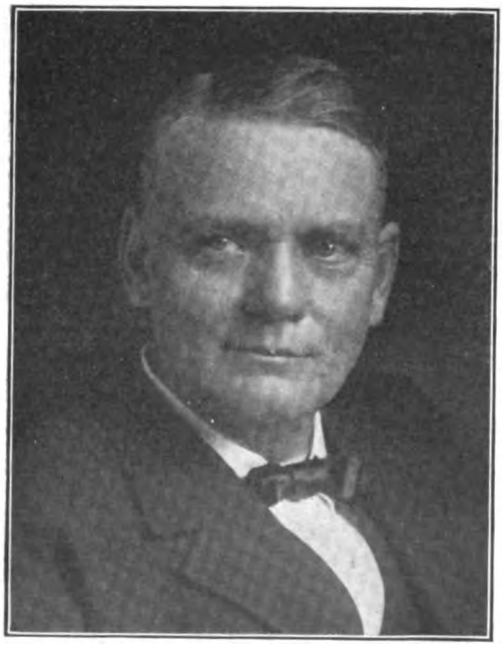
Operation

Accident Prevention.

THE prevention of accidents continues to occupy the center of the stage as the most important contemporary question in railway operation. The great amount of public attention which has of late been given to this subject, the strenuous efforts which are being made by practically every large railway system in the country to secure a reduction in accidents through greater efficiency in the operating staff, and the harsh and frequently unfair attitude of public authorities in connection with the investigation and determination of the responsibility for accidents, has been responsible for the remarkably widespread interest in the subject. The arrest of three of the officials of the New York, New Haven and Hartford for manslaughter, following a wreck on that line, and the indictment of sixteen officials in Indiana on the same ground, has brought the accident question home to railroad managers in a way which is most unpleasant. Evidently public authorities are taking the stand that in every bad accident, the railroad officials will be called upon to prove affirmatively that they have not been negligent.

While all of these movements have served to spur on the railway officials in a crusade against accidents, yet the fact remains that the "safety first" movement was started by the railways before the public had become actively interested in the question, and that to these movements must be assigned in large measure the present popular interest in the accident problem. As the Chicago and North Western remarks in its January Traffic Bulletin, "there is nothing intricate or mysterious about this movement. Officers and men merely confer intimately and informally regarding the means that seemingly might, in their judgment, be the means of protecting life or limb."



RALPH C. RICHARDS,

Who, as Chairman of the Safety Committee of the Chicago and Northwestern, has produced splendid results in the conservation of life.

The Pennsylvania Safety Rallies.

EVERYWHERE throughout the country during the last month "safety rallies" have been held on a large or small scale. One of the largest meetings was that held by the Pennsylvania Railroad on January 15th. Representatives were present from every line with which the Pennsylvania had a physical connection in the East, while the attendance of the Pennsylvania's own employes and officials was very large. Similar meetings have been held or are announced by this company in Philadelphia, Altoona, Trenton, Wilmington, Williamsport, Pittsburg and Washington, while smaller but not less important meetings will be held at the various division points within the next few weeks. The company has prepared, after careful study, a set of stereopticon views with which to illustrate the talks at these rallies, while it has under preparation a booklet which is to be placed in the hands of every one of its 85,000 employes pointing out the methods by which railroad safety can be secured and driving home the truth that the accomplishment of safety depends largely upon the responsibility and carefulness of each individual employe.

One of the most important rallies heretofore held was that conducted at Buffalo. This gathering was composed of officials and employes of the New York Central, the Lake Shore, the Michigan Central, the Pennsylvania, the Lackawanna, Lehigh Valley and the Wabash systems.

Recent Innovations in Safety Work.

THE St. Louis and Chicago Railroad Company has invited its women employes and the widows and daughters of deceased employes to enter a competition in which prizes will be given for the best letter on the "safety first" subject. The Baltimore and Ohio has made arrangements to have its General Claim Agent deliver a lecture at each division point of the system which will be illustrated by stereopticon views showing the actual conditions under which employes work in busy terminals, on trains and in shops; the mistakes which employes constantly make and which lead to accidents; the working of numerous safety devices which have been installed by the company, and some of the methods by which employes can contribute to increased safety for themselves and their fellow workmen. On January 25th, the General Claim Agent of the Baltimore and Ohio delivered a lecture by invitation at Decatur, Illinois, before the employes of the Cincinnati, Hamilton and Dayton, the Vandalia and the Illinois Central railroads within traveling distance of this point.

The Denver and Rio Grande has arranged for a series of monthly meetings over the entire system. For this purpose the system has been divided into four divisions, at each of which, for seven days in each month, lectures and demonstrations will be given, the plan being that the demonstration will be given daily at some point on the division during that week. In addition, the Safety Committee of the company has prepared a book to be used in reporting defects or

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dangerous practices. A copy of this book is to be given to each committee-man who will report in it such defects as he may discover or as may be brought to his attention, at the same time making entry upon the stub of just what is reported on the page. In this way, the committeeman will have a duplicate of his report and will be able to follow up the outcome of his suggestions. The way in which the book can be of assistance in promoting the work of the committeeman is set forth in a series of rules which are printed in the back for the guidance of the committee-men. In addition, the company has adopted a postal card form, the cards being placed at the various stations. Employes are requested to use them for reporting defects or dangerous practices that may come to their attention. Space is provided on the card for the report of the chairman on the suggestion contained therein.

The Pere Marquette has issued a statement which declares that clumsiness on the part of employes will not be tolerated hereafter, and that men persistently guilty of this fault will be discharged. This summary action is taken because the company is convinced that a large proportion of accidents are due to clumsiness on the part of employes who are not naturally fitted for railway service and who should, in the interest of the public and their fellow workmen, be eliminated as soon as possible.

Growing Public Appreciation of the Slow Speed Train.

ONE of the most significant results of the "safety first" campaign has been the growth in the proportion of railway travelers who desire to travel on trains which will operate at conservative speeds, even though a longer period of time is required for their journey. The Titanic accident resulted in the sudden popularity of the slow speed liner which did not seek to make a record but rather to operate in a cautious manner. One of the Eastern trunk line railroads, in advertising a luxuriously equipped train makes the significant statement that the train "runs at comparatively low speed." This train, which has every modern convenience, would a few years ago have been run on as rapid a schedule as conditions would possibly permit. It is to be hoped that we are developing a class of travelers who prefer safety and comfort to excessive speed.

Official Report on Lackawanna Collision.

THE official report of the New York Public Service Commission for the Second District, on the rear collision which occurred on the Lackawanna line at Corning, New York, on July 4th last, has been made public. The report finds that the accident was due to the failure of the engineer on the second train to observe the signal given him by the flagman of the preceding train. It was found that the flagman had gone back a sufficient distance, but that he had violated the rules by failing to take torpedoes with him, although the testimony indicated that the weather was sufficiently clear to justify him in refraining from the use of the torpedoes under the company's rules that they should not be used in block signal territory except in foggy or stormy weather. The Commission recommends that the rules should be amended so as to give the flagman liberty to use torpedoes in such territory whenever any doubt or special danger appeared to exist. The Commission takes occasion to emphasize the fact that no permanent safety can be expected until railroad employes recognize the importance of their duties and the need of constant care in every detail of their work. The Commission advocated the necessity of stricter discipline and the summary removal of men from the service who fail to meet a reasonable standard of performance of duty in matters involving safety. The report recommends the use of steel cars or of wooden cars with steel underframes, especially on high speed trains.

Report on English Railway Accident.

THE railroad officials of this country are not the only ones who have to deal with investigating commissions looking into the causes of accidents or wrecks. A very elaborate report has recently been submitted to Parliament on the wreck which occurred on the London and South Western on September 17th last. While there is little in this report which would be suggestive to railroad officials as to means of preventing accidents in this country, yet it is interesting as showing the difference in the English and American methods of making such an investigation. Instead of an attempt to make capital out of the accident through extravagantly worded comments on the causes and possible means of preventing the accident, the English report is calm and judicial in its tone, fair to both sides, presenting the testimony as it has found it and leaving the conclusions to be summed up in the portion of the report where they can properly appear, rather than having them interspersed throughout the evidence.

The Month's Accident Record.

IT is a source of gratification to be able to report that the number of accidents resulting in heavy casualties during the month has been quite small. The most serious wreck was that which occurred on the Chesapeake and Ohio on the first day of the new year. An engine of the heaviest type, pulling a freight train westbound, plunged through a temporary bridge spanning the Guyan River at Wyandotte, West Virginia, resulting in the death of seven employes and the injury of five others. The financial loss to the company is estimated at one and a half million dollars. The bridge which proved faulty was, at the time, under repair. The preliminary investigation of the company seemed to indicate that the disaster was caused by the collapse of the piling, through having been undermined by the high water then prevailing.

A most peculiar accident occurred on the Vandalia Railroad on January 8th. While one of its passenger trains was standing in the Union Station at Terre Haute, an eastbound train crashed into the rear end of it, telescoping the day coach of the standing train and the combination smoker and baggage car, resulting in the death of two passengers and the injury of fourteen. The cause of the accident is ascribed to the disregard of signals by the engineer of the second train.

Another accident of a very similar character was that occurring at Hyattsville, Md., on December 28th, when a passenger train of the Chesapeake Beach Railroad Company crashed head-on into a Baltimore and Ohio coal train at a junction point. Five employes were injured.

The final accident of importance occurring dur-

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ing the month, resulting in loss of life, was the collision of a Washington, Baltimore and Annapolis electric interurban car with a freight train at Annapolis, Md. Two employes were injured.

Interstate Commerce Commission Accident Bulletin.

ACCIDENT BULLETIN No. 44, covering the three months ending June 30, 1912, has been issued by the Interstate Commerce Commission. In addition to the statistics compiled in the customary manner, showing the causes of accidents, the number killed or injured, and the character of the injury, the Commission gives the results of the investigation made by its Chief Inspector of Safety Appliances of a number of accidents occurring during the period under review. A review of the findings of the Commission concerning the causes of fifteen accidents investigated shows that two were caused by broken rails; one by the spreading of the rails on a curve, due to excessive speed; one was due to a faulty switch; one was the result of soft and uneven track, leading to the derailment of the train, while the balance were due to the failure of employes to obey rules or miscellaneous unavoidable failure of mechanical appliances.

In connection with its investigation of the wreck on the New York, Chicago and St. Louis, occurring on June 22, 1912, the Commission condemns the practice of running fast trains only five minutes apart, contending that trains should be spaced far enough apart to give the flagman ample time to protect against the following train whenever a stop is made for any purpose.

Trespassing on Railway Rights of Way.

IN twenty years, 86,733 persons have been killed and 94,646 injured while trespassing on railroad tracks. This astonishing showing is used by the sub-committee on Rules of Railway Operation and Legislation in its report on "Trespassing on Railway Rights of Way," recently issued. The Committee concurs heartily with the conclusion previously expressed by Commissioner McChord of the Interstate Commerce Commission that trespassing on railway property is due largely to inefficient local government. Although over five thousand people are killed every year as a result of this practice, there are very few states in which the legislatures have seen fit to enact statutes forbidding such trespassing, while in many of the states where such laws are in existence, they are practically dead letters. The Committee points out that fourteen people are killed daily as the result of trespassing; that the greatest number of passengers ever killed in a single year from all causes was in 1907, when they equalled 610. In that year the number of trespassers killed was 5,612, or over nine times the number of passengers. In 1911, the last year for which the Committee found complete statistics were available, there were fifteen times as many trespassers as passengers killed. (According to the report of the Interstate Commerce Commission for the year ending June 30, 1912, 53.3 per cent of the total number of persons killed on railways were trespassers.) The Committee closes its bulletin by stating the fact that forty-one legislatures are meeting during the present winter, and advocates strongly that strenuous efforts be made to have each legislature pass a law making it a misdemeanor to trespass on railroad property.

Necessity for Automatic Train Control not Established.

IN connection with the question of accidents, the opinion expressed by Mr. D. F. Jurgenson, Engineer of the Minnesota Railway and Warehouse Commission in a paper submitted as the report on the Committee on Safety Appliances to the National Association of Railway Commissioners, that the necessity for automatic train control has not been established, is interesting. He believes that before such a step is taken it is necessary to exhaust all means of prevention, especially in the direction of eliminating individual errors in train operation. At best, the automatic train control device would be only an auxiliary to, and of secondary importance to the signal system. The device is likely to make the employe careless of the responsibilities which he must assume. Mechanical devices are not error-proof, and failures occur even in the best signal systems. Automatic train control could not be relied upon implicitly, and it is necessary to depend, even with it, upon human responsibility. Mr. Jurgenson further believes that we in this country should follow the example of Germany and other European countries by making railway employes amenable to the State for faithful attendance to the performance of their duties. The responsibilities of employes should be equal to that which the State now enforces upon practitioners of medicine, lawyers and other professional classes, and punishment should be dealt out for carelessness or incompetency.

Interesting Experiments with Automatic Control

ALMOST interesting series of tests was recently made upon the Huntingdon and Broad Top Mountain Railroad and Coal Company, with the automatic system of train control manufactured by the Safety Block Signal Company. The general outlines of this train control device is shown in the accompanying illustrations. In brief, the device consists of an electrically charged rail secured to the track just inside of the block protected by the automatic signal The locomotives are equipped with a wheel which comes in contact with this rail. When

LOCATION OF CONTACT RAIL BACK OF SIGNAL.

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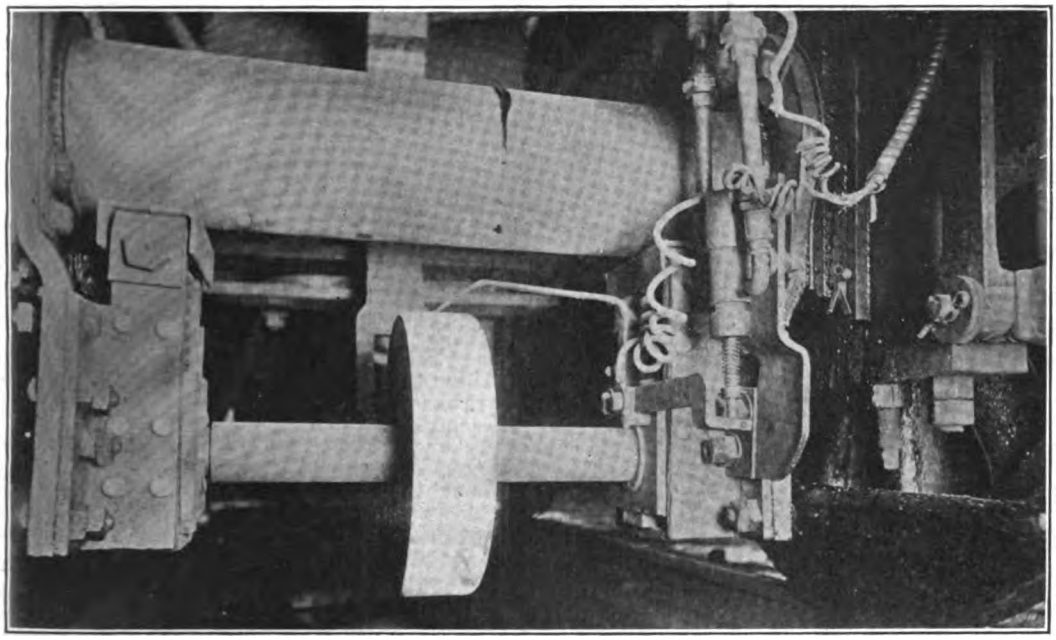
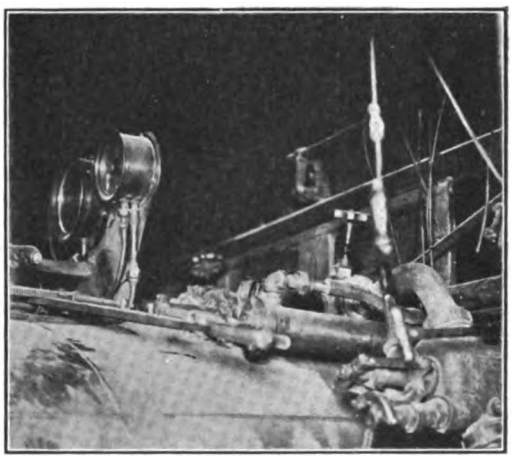


CONTACT WHEEL, MECHANICALLY ACTUATED VALVE AND CIRCUIT CONTROLLING DEVICE.

the rail is not charged, as is the case when the block signal is at "danger," the rail electrically and mechanically trips a valve which admits air to the cylinder, closing the throttle of the locomotive and applying the air brakes. When the contact rail is electrically charged, the device does not operate, permitting the train to continue into the next block. The first test which was made with this device was to determine its efficacy in preventing rear-end and head-on collisions. A locomotive was stood in a block and another locomotive was run by a danger signal into the block already occupied. The automatic device successfully stopped the oncoming locomotive within a short distance. Following this test, two engines each drawing two cars were started towards each other in separate blocks. As each engine struck the safety rail on entering the intervening block, the throttles were automatically closed and the trains brought to a standstill. The third test consisted in opening a side switch from a main track within a block and then running a train past the danger signal which had thereby been set into the block. Again the automatic train control proved effective and the train was stopped.



THROTTLE CONTROLLING CYLINDER.

Pullman Service on New Haven System.

ANNOUNCEMENT has been made by the New York, New Haven and Hartford of the transfer of its Pullman and sleeping car service to the Pullman Car Company, under a contract dated January 1, 1913, running for twenty years. Under this contract it is understood that the Pullman Company will take over the Pullman sleeping cars owned by the New Haven line, making proper compensation therefor, and will introduce steel cars on through limited trains. All of the employes of the New Haven's Pullman car service will be retained, their pay and relative positions being unchanged. The conversion to steel Pullman equipment is in line with the recent recommendation of the Interstate Commerce Commission to the New Haven road, following the investigation of the disastrous accidents of last year.

Shippers Request Railroads to Furnish Clean Cars.

THE Committee on Transportation Instrumentalities of the National Industrial Traffic League has requested the railroads of the country to inaugurate a system by which shippers will be insured under all conditions that cars placed upon their sidings will be free from de-

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bris. The Committee recognizes in its recommendation that the fault of which they complain is due to the carelessness or negligence of consignees of a previous shipment in leaving refuse in the cars. The League in its report urges its members and freight shippers generally to clean out cars thoroughly after unloading so that they will be in good condition for subsequent use. The Committee believes that strict attention to this matter would lead to a considerable reduction in damage claims against railroads by shippers for loss of freight in transit by reason of unclean cars.

Handling Claims on the Frisco System.

THE officials of the St. Louis and San Francisco Railroad are enthusiastic over the results secured in the recent change which was made in the method of handling loss and damage claims. Some months ago the handling of loss and damage claims was put entirely in the hands of the operating department. Each station agent was empowered to settle the claims of his own district up to fifty dollars, irrespective of station receipts. Claims up to five hundred dollars could be settled by the station agent by communicating the details to the Assistant General Manager and receiving his endorsement to the proposed adjustment. Station agents were recommended, where differences of opinion existed as to the value of the claim, to have the matter arbitrated on the spot by a disinterested person satisfactory to the claimant and the station agent. This method has been very popular with the shippers who have thereby been able to secure prompt action upon their claims, and the company is very much gratified over the material reduction which has been made in the amount required to settle damage claims.

Increase in the Number of Idle Cars.

AS contrasted with the shortage in the car supply, which was a matter of concern to the railway companies in December, the report of the American Railway Association shows that on December 31, 1912, there were 17,058 idle cars, while the report of January 15th placed the number of idle cars at 28,549. At the date of the last report, there is no shortage of any kinds of cars, even the supply of box cars, in which the greatest deficiency existed, showing now a small surplus. By contrasting the situation of the present time with that of a year ago, the degree to which business has improved is clearly apparent. On January 3, 1912, there were over 135,000 idle cars. The largest increase in the number of idle available cars occurred in the Eastern States and in the Middle West.

Freight Car Tactics.

ARTHUR HALE, in a paper read before the Central Railway Club on January 9th, made some interesting comments upon the subject of freight car tactics and the way in which railroad companies might improve the efficiency of their combined equipment. He strongly condemned the practice of distributing roads of using the cars of their neighbors in their own business, and pointed out the justification which such a practice gives to the injured road to declare an embargo against the offender,—as was done recently by the Illinois Central against the Missouri Pacific. Mr. Hale made some interesting comments upon the current situation. He declared that it was yet too early to say what would be the result of increasing the per diem rate to 45 cents. He declared that the difficulty of such a high rate, if enforced all year round, is that it would hasten the movement of cars much more in periods of car surplus than in periods of car shortage, and there was no real reason why empty cars should move very fast when there was an over-supply of equipment. He believed that the solution of the matter would come through the appointment of a powerful commission, as a part of the American Railway Association, which should have large discretionary powers, including the right to fine roads which had injured others by misusing cars. He commented with approval upon the work of the commission recently appointed by the executive committee of the American Railway Association to handle this matter and urged the further adoption by railroad presidents of the plan agreed to by practically all of the lines entering into Chicago to the effect that empty foreign coal cars shall be handled promptly, even in preference to slow freight.

Northern Pacific Establishes Bureau of Efficiency.

ANNOUNCEMENT was made on January 16th that the Northern Pacific had established a Bureau of Efficiency under the jurisdiction of the Operating Department, in charge of the third vice-president. The Bureau, whose headquarters will be at St. Paul, will be under the direct charge of Mr. Charles T. Banks. The purpose of the Bureau, as announced, is to promote the welfare of patrons and employes of the company, to effect greater economy in operation, to raise the standard of individual and department work, and, through closer co-ordination, to bring about a greater degree of dispatch and safety in the performance of the company's business. The plan provides that the superintendent of each division shall act as the local representative, to whom employes will offer suggestions and report conditions and practices affecting the efficiency of the service. Employes are requested to confer frequently with the Superintendent on all subjects coming within the scope of the Bureau and make suggestions for the improvement of the service or working conditions as they now exist.

Pennsylvania Places Record Car Order.

ANNOUNCEMENT has been made by the Pennsylvania Railroad Company that $16,000,000 will be expended at once in the purchase of freight equipment. This sum is the largest amount which has ever been expended in a single order by an American railroad for such purpose. The action on the part of the Pennsylvania management is based upon "a belief in the continued growth of traffic along this line and to provide for its prompt and efficient handling." The placing of such a large order is concrete evidence of the confidence of the Pennsylvania management in the permanence and further growth of industrial prosperity. Orders are to be placed at once for 10,000 cars, representing additions to the system's equipment and for 2,300 cars representing replacements. In the case of the replacements, the new cars will be of 100,000 pounds capacity, whereas the worn out cars had an average capacity of only 60,000 pounds. The net

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result will be an increase in the carrying capacity of the company of about 40,000 pounds per car, which, if added to the additions, will amount to a net increase of 546,000 tons in the carrying capacity of the company. The lines east of Pittsburg will receive 500 steel gondola cars, 1,300 wooden side gondola cars and 1,000 refrigerator cars, while the lines west of Pittsburgh will receive 3,000 steel gondolas, 1,000 wooden side gondolas, 500 refrigerator and 500 box cars. It is expected that the gondola cars will cost about $1,200 each, the refrigerator cars $2,000 each, and the box cars $1,300 each. During the four years from 1909 to 1912, inclusive, the Pennsylvania system has added to its freight equipment a net increase of 1,809,300 tons of carrying capacity. When the new equipment is received, the company will have approximately 275,000 freight cars.

Frisco Operating Results.

THE St. Louis and San Francisco Railroad has made an interesting comparison of the efficiency of its operating results of the year ending June 30, 1912, with the year ending June 30, 1905. The comparison shows a 30 per cent increase in freight traffic as compared with a decrease of 8 per cent in train mileage; while the earnings per ton per mile increased less than 1 per cent, the gross earnings per freight train mile increased 29½ per cent. The potential tractive effort per locomotive increased 13 per cent in the seven years, while the average train load increased 32 per cent.

Southwestern Roads Changing from Oil to Coal.

THE rapid increase in the price of fuel oil in the Southwest threatens to lead to the abandonment of this fuel by the railroads of this section. The St. Louis and San Francisco, the Rock Island, the Atchison, the Southern Pacific, and the International and the Great Northern have made more or less extensive use of oil in the last few years. These roads were induced to take up oil when the price was around 33 cents a barrel. While a large investment was required to change from coal to oil, yet the economy to be effected with oil at that price was so great as to warrant the alterations. Since that time, the price of oil has advanced to 83 cents a barrel, and it is not certain that the end is yet in sight. At the rate of 3½ barrels of oil as equivalent to one ton of coal, the economy from oil fuel has almost wholly, if not entirely, disappeared. As contrasted with the sharp advance in the price of oil, the tendency of coal prices in Arkansas and Oklahoma has been downward. The reduction in the purchase of coal by the railroads led to a depression in the coal industry in these States, resulting in a decrease in the production of bituminous coal amounting to 25 per cent, as contrasted with an increase of 40 per cent in production in other sections of the country. It is reported that the Atchison has bought a group of mines in Oklahoma, and that other railroads are either negotiating for the purchase of mines or for long term coal purchase contracts with a view of curtailing the number of locomotives using oil fuel.

Interesting Signal Development on English Railways.

THE headway of trains on the Metropolitan District railway is so close that it is very difficult to devise a block signal system with sections sufficiently short as to permit of the expeditious movement of the required number of units. In order to increase the capacity of the railway, "calling-on" arms have been introduced. The general appearance of these arms is shown in the accompanying illustration. By the use of these arms, a train can be permitted to go forward towards an obstruction after it has been brought to a stand, the driver understanding, because the arm is set at danger against him, that he is entering an occupied section. By allowing the train to proceed in this manner, the section which has just been left is rendered free, allowing a second train to enter. Practically, this method permits of the saving of a section and of a considerable delay to the following train. The practical working of this system will be watched with interest by American signal engineers.

CALLING-ON ARM, METROPOLITAN DISTRICT RY.

Rock Island & Illinois Central Campaigns and a Fuel Economy.

THE Illinois Central Railroad has resorted to the use of moving pictures to demonstrate the possibilities of economy in the use of fuel. An instruction car fitted up for this purpose is being taken over the lines of the system, stops being made at every division point,

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where lectures are given morning, afternoon and evening. Engineers, firemen and other employes in the train service are invited to be present and obtain the benefit of the lectures and pictures. The pictures show samples of the work of competent and incompetent firemen, the lectures consisting of comments upon the difference in the right and wrong method as illustrated by the pictures.

The Superintendent of Locomotive Operation of the Rock Island lines has appointed four supervisors of locomotive operation, to have headquarters at different points on the system, who will have charge of the mechanical operation of all engines in service on their respective divisions and who will be expected to bring about economies in the use of fuel, lubricating material, tools and other supplies. Efforts will also be directed towards reducing the cost of maintenance of locomotives and other operating costs through improvements which may be brought about as a result of better supervision and instruction of enginemen.

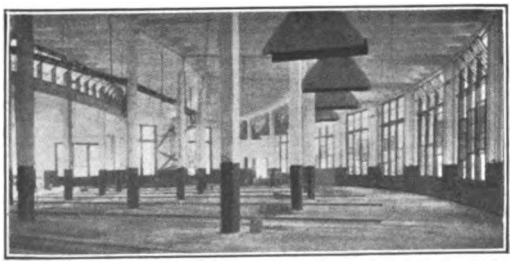
The Financial Problem of Railway Terminals.

A VERY small proportion of railway men realize the tremendous investment which railroads have made in recent years in passenger terminal properties, and the financial problems which incidentally arise. Mr. L. C. Fritch, Chief Engineer of the Chicago Great Western, in a paper on Railway Terminals read before the Canadian Railway Club on January 14th, presents this problem in a most interesting fashion. After pointing out the necessity for good terminals, which to a large degree, influence a road's traffic, Mr. Fritch calls attention to the enormous investment which has been made within recent years. He cited the New York Central's terminal in New York City, which will probably cost $200,000,000; the Pennsylvania's investment of $113,000,000 in the same city; the Chicago and North Western's terminal in Chicago, costing $30,000,000; the joint terminal in Washington representing an investment of $178,000,000; and the Kansas City joint terminal which it is estimated will cost $45,000,000, as recent examples of tremendous expenditures. He pointed out that the New York Central's terminal would represent 2,000 miles of double track road at $100,000 per mile, while the Pennsylvania's terminals in New York, Philadelphia, Baltimore and Washington represent an average of nearly $800,000 per mile of road for the 223 miles from Washington to New York. Mr. Fritch then proceeded to calculate the fixed charges, including the operating cost, of the large terminals which he cited, comparing the result with the volume of business passing through these terminals and showing what proportion the fixed charges bore to the business originating in the terminal. His conclusion was that the fixed charges of the New York Central and the New Haven on the New York terminal were equal to 80 per cent of the gross passenger receipts accruing to these lines on New York City traffic, and that the fixed charges, depreciation and operating expenses of the Pennsylvania's terminal in New York were equal to the entire gross receipts from the passenger traffic on the Pennsylvania's lines originating in and around New York City, while the cost of operating the Chicago and North Western in Chicago equals 65 per cent of the gross passenger revenue originating at that point. Mr. Fritch cited in connection with the cost of terminal service in freight work, the recent statement of a prominent railway executive that the terminal expenses of his line in freight service to Chicago averaged $21 per car. Mr. Fritch advocated a joint terminal and common ownership of railway lines in Chicago.

Increase in Block Signal Mileage.

ACCORDING to the *Railway Age Gazette*, the year 1912 witnessed the installation of automatic block signals on over 1,900 miles of additional roadway. This brings the total of mileage protected in this manner up to 23,236 miles. To this should be added 55,715 miles protected by manual signals. In a sense, the extension of automatic block signals is disappointing, aggregating only a 10 per cent increase for the year. When, however, the condition of the security market is considered and the financial showing of the railroads is taken into consideration, the result is most gratifying. The growth of the mileage of the manually operated signals cannot be definitely foretold at this time. It is certain that the ratio of growth equalled and in all probability exceeded that for automatic signals. The greater proportion of our railways are not in a position which would warrant the enormous expenditure involved in installing an entire automatic system, and with the light traffic on single track lines, the advantages would not warrant such an investment. Thus, the total of block and manual signal mileage increases but slowly. It, however, includes practically all the lines where great density of traffic prevails, and with permanent industrial prosperity and better financial conditions for the railroads, it is reasonable to presume that greater extension in this mileage will occur.

Mechanical



SANTA FE CONCRETE ROUNDHOUSE AT RIVER BANK CAL.

New Construction Methods in Concrete Roundhouses.

THE Santa Fe system has recently completed a roundhouse at River Bank, California, in the construction of which many unique features in the use of concrete by railroads were incorporated. For a number of years, factories, warehouses and grain elevators have been built on the unit plan, by which, instead of pouring the concrete in place upon an expensive system of forms, it is cast into blocks on the ground in a number of moulds. This plan was successfully followed by the Santa Fe in connection with this work. The blocks were elevated from the moulds

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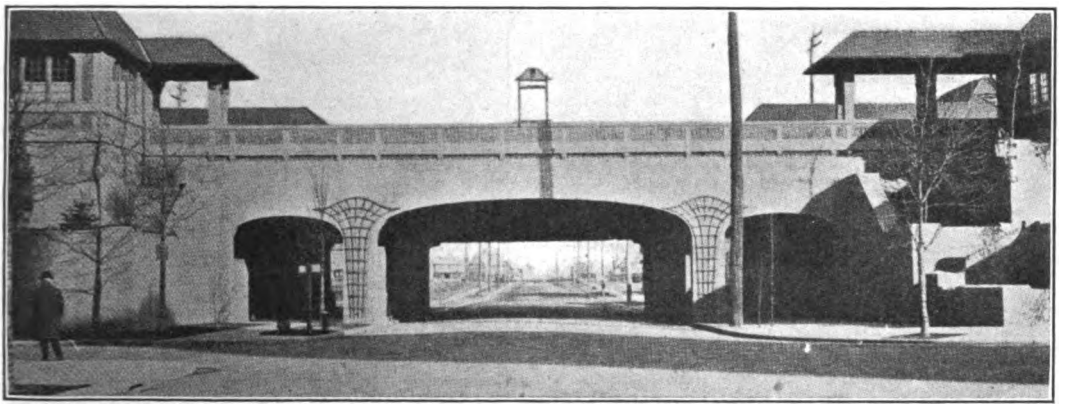
by a crane and set in the building much as if they had been structural steel. By the use of grouting, the various blocks, the roof slabs and the steel girders are practically welded into a monolith. The accompanying illustration shows the appearance of the structure after it was completed. The light, cheerful and cleanly appearance of the building is one of its most notable features.

ARCHITECTURAL EFFECTS IN CONCRETE STRUCTURES.

THE railroads have been for many years among the largest users of concrete. There is hardly any form of railroad construction in which this material has not been used. The most serious objection which has been raised against this material is the lack of beauty of concrete work after it is finished. While this is unimportant for many classes of work, such as retaining walls, yet for a large amount of construction work the appearance of the finished structure is a matter of considerable moment. Engineers have recently come to realize that it is possible to secure genuinely pleasing effects in concrete construction. The accompanying illustration, showing the bridge erected by the Long Island Railroad at Forest Hill, emphasizes the possibilities of concrete in skillful hands. The railroad company was particularly anxious to have an artistic bridge at this point. The Sage Foundation Homes Company is developing a beautiful suburb at Forest Hills and it was very necessary that the bridge and station structure should harmonize architecturally with the high class development which was planned. The combination of red tiled roofs and brick panels with the gray concrete, with which many of the houses of the town are built, makes a very pleasing effect. The same general architectural scheme is reproduced in the stucco work on the bridge by mixing in a considerable portion of the red roofing tile broken into small bits.



CONCRETE BRIDGE AT FOREST HILLS, LONG ISLAND.

DERAILMENT OF TRUCKS ON CURVES.

INTERESTING light is thrown upon the reasons for a number of derailments on curves which have occurred recently, particularly where rigid steel equipment has left the track at points where thousands of the older and more flexible cars have passed in safety, by Mr. Arnold Stucke in a recent article in the *Railway Age Gazette*. According to the author, when a car strikes a curve, the front truck being on a partially elevated track and the rear on a level track, the car is subjected to a severe twist, and if the train is rigid, as is the case with most high capacity steel equipment, the load is largely carried by the two side bearings diagonally opposite each other. This tendency is more apparent in the case of freight equipment than with passenger cars, while it is most pronounced in the case of freight cars where the distance between truck centers is comparatively short. Where the car frame is rigid, the forward wheel on the outside rail of both front and rear trucks is forced hard against the rail, the flange particularly being pressed with great force against the rail. The only reason that these wheels will not climb in their effort to swivel the track, is because of the heavy vertical load which rests on them. Now if a car enters a curve at an unusually high speed, the centrifugal force increases sharply the wheel pressure of the forward wheels of each truck against the outside rail without increasing the load on the wheel. Under such conditions, therefore, it is easy to understand why with rigid frame equipment, derailments are more likely to occur. The point at which derailment is most apt to occur is upon entering the curve; after entering the curve, the track level under both trucks becomes approximately the same, enabling the trucks to swivel more readily. When leaving the curve, there is a tendency of the forward outside wheel of each truck to climb. However, the vertical load is apt to be largely distributed upon these wheels at this time, which tends to prevent climbing. At high speed, the rear truck is more apt to be derailed when leaving the curve than the front one. The author recommends that as far as possible the car frames be made as flexible as is consistent and that side bearings should be made frictionless to minimize the climbing tendency.

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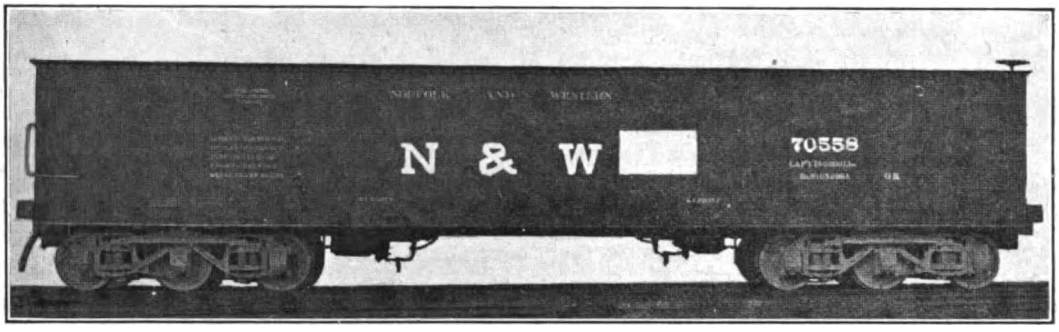
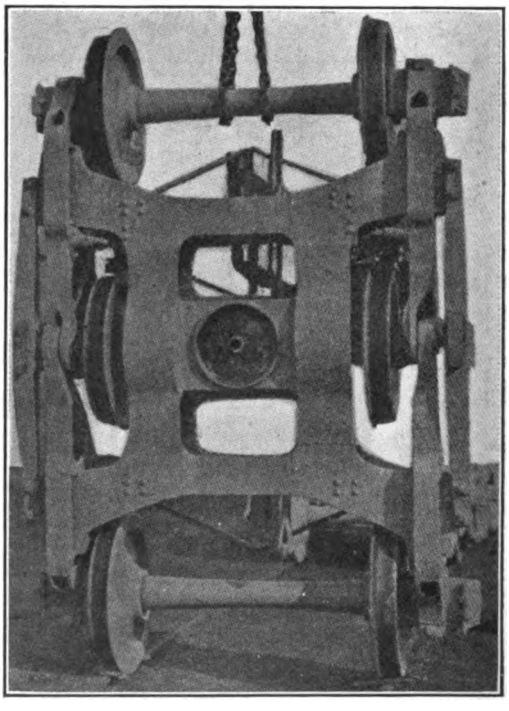
THE ADVENT OF THE NINETY-TON GONDOLA.

IT has been inevitable that sooner or later a further increase should be made in the carrying capacity of the gondola car. The great advantages, from the operating standpoint, to be secured from a larger unit under certain conditions, such as the handling of coal from the mines to the vessel, as is practiced by the Norfolk and Western and other railroads similarly situated, has led to the evolution of a larger car unit. The difficulty which had to be overcome was that the standard car of 120,000 pounds capacity if mounted on four-wheel trucks involved journal pressures to about the maximum for safe operation and reasonable maintenance cost.



NORFOLK AND WESTERN NINETY-TON GONDOLA CA R MOUNTED ON SIX-WHEEL TRUCK.

The first ninety-ton car has been designed and built by the Norfolk and Western. Its general appearance is shown by the accompanying illustration. Perhaps the most interesting feature in connection with the new car is the truck construction, which is also shown in an accompanying cut. It will be seen that a six-wheel truck has been designed for these cars. Heretofore, six-wheel trucks have been confined almost entirely to passenger service, and it has been felt that this type of truck is too expensive for ordinary freight use. The new type of truck, which was designed by the Superintendent of Motive Power and the Mechanical Engineer of the company, provides for a cast-steel side frame in two parts and of peculiar shape, arranged to carry three journal boxes at four feet six inch centers. The center plate is carried on a double cast steel bolster, resting in turn on four nests of three double-coiled springs. The swivel joint in the side frame was so made as to avoid any shearing action on the bolt. The weight of the car complete is 65,200 pounds. The proportion of revenue lading to total weight will be over 73 per cent, and with a 10 per cent overload, about 75 per cent.



PLAN VIEW OF SIX-WHEEL TRUCK.

BOILER ACCIDENTS IN 1912.

THE first annual report of the Federal Inspector of Boilers gives some interesting information concerning the causes of boiler accidents for the year ending June 30, 1912. According to the Inspector, out of the 856 boiler accidents reported, 243 were the result of defective squirt hose and connections; 165 were caused by the bursting of water glasses; 69 were due to crown sheet failures resulting from low water, where no contributory cause existed, and 25 were in part the result of contributory defects. Forty-six accidents resulted from injector failures and 31 from defective injector steam pipes. The balance of the accidents were the result of a wide range of causes. Of the total of 1,005 injured as the result of these accidents, almost one-quarter, or 245, resulted from defective squirt hose and connections; 168 were injured by the bursting of water glasses, and the same number from crown sheet failures. The number injured as the result of the failure of injectors or adjacent parts was 85. Over 90 per cent of injuries which resulted fatally were caused by crown sheet failures or shell explosions.

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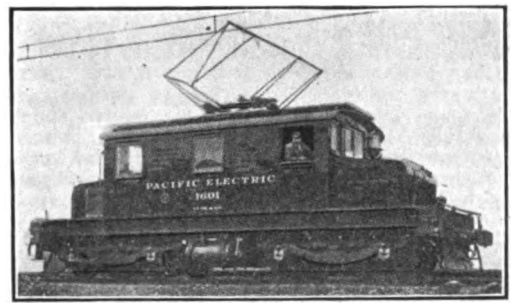
ELECTRIC LOCOMOTIVES FOR THE SOUTHERN PACIFIC.

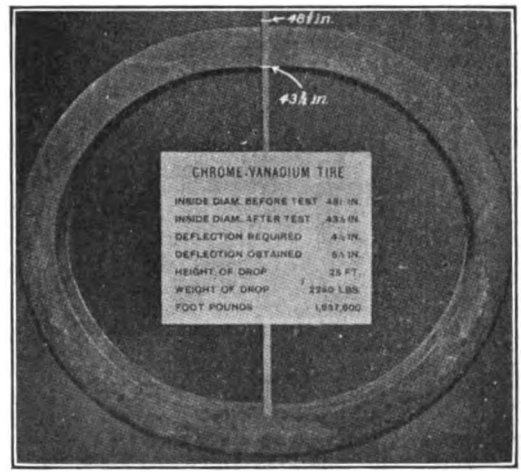
THE Southern Pacific system recently ordered fifteen 60-ton electric locomotives for use in freight and switch service on their electrified lines in California. The first of these locomotives has just been completed and delivered. The general appearance of the locomotives is shown in the accompanying illustration. The locomotives are capable of a tractive effort of 5,600 pounds with natural ventilation of the motors, and of 11,520 pounds with forced ventilation. The locomotives are equipped in accordance with the trunk line practice, the mechanical parts having been built by the Baldwin Locomotive Works and the electrical apparatus by the Westinghouse Company.



SOUTHERN PACIFIC ELECTRIC LOCOMOTIVE.

CHROME-VANADIUM DRIVING WHEEL TIRES.

MOST encouraging results have been secured in a recent test under actual operating conditions with chrome-vanadium driving wheel tires. These tires were applied to a Pacific type of locomotive of a total weight of 228,500 pounds, of which 150,000 was carried on the drivers. This locomotive was operated on a division having numerous curves ranging from 3 to 15 degrees curvature. The new tires, after an engine mileage of 121,000 miles were found to be in good condition, whereas a sister engine in identical service, equipped with carbon steel tires gave a mileage of only 60,040 before the tires had to be turned. The accompanying illustration shows a chrome-vanadium tire which had been subjected to a drop test in the plant of the Midvale Steel Company. The specifications called for a deflection of 3 11-16 inches, whereas the total deflection obtained was five inches. A microscopic examination of the metal in the new type of tire as contrasted with the carbon steel tire shows that the former has a much closer grain, which explains to a large degree the unusual results secured in operation.


48 1/16 in.
43 1/8 in.
CHROME-VANADIUM TIRE
INSIDE DIAM. BEFORE TEST 48 IN.
INSIDE DIAM. AFTER TEST 43⅛ IN.
DEFLECTION REQUIRED 4⅛ IN.
DEFLECTION OBTAINED 5 IN.
HEIGHT OF DROP 25 FT.
WEIGHT OF DROP 2240 LBS.
FOOT POUNDS 1,697,800

CHROME-VANADIUM DRIVING TIRE AFTER DROP TEST.

ZINC CHLORIDE vs. CREOSOTE TIE PRESERVATIVES.

ONE of the most interesting papers presented before the convention of the American Wood Preservers' Association held in Chicago on January 21st, was that read by Mr. Weiss, Assistant Director of the Forest Products Laboratory, Madison, Wisconsin, on "A Comparison of Zinc Chloride with Coal Tar Creosote for Preserving Cross Ties." Mr. Weiss points out that the number of zinc chloride treated ties has remained stationary in the last five years, while the number of creosoted ties has more than trebled in this period. This comparison shows the relative popularity of the two methods, and Mr. Weiss finds that from a scientific standpoint, the judgment of the tie users is sound. Judged from almost every point of view, the coal tar creosote is the more desirable preservative. It does not leach from the wood after the tie is put into service as does its competitor; it is less corrosive than zinc chloride; it does not lend itself readily to current leakage, where electric currents are used; it is easy to test the extent of penetration, which cannot be said of zinc chloride, and, finally, gives a much longer life—about five years—than ties treated by the other method. Against these advantages, coal tar creosote has certain disadvantages as compared with zinc chloride. It is more difficult to secure satisfactory penetration into the tie; it is subject to wider variations in composition in use; it is less resistent to the action of fire than zinc treated wood; it is more difficult to handle than zinc chloride, and represents a higher initial cost of about 30 cents per tie than the other method. These disadvantages, however, are more than outweighed by the greater practical importance of the advantages already enumerated. Mr. Weiss' conclusions can be summarized as follows:

(1) That both methods of tie preservation are effective and that there is little choice between them so far as handling charges are concerned.

(2) That creosoted ties cost from two to three times as much for treatment as burnettized ties.

(3) That creosoted ties last on an average longer in the track than burnettized ties, and

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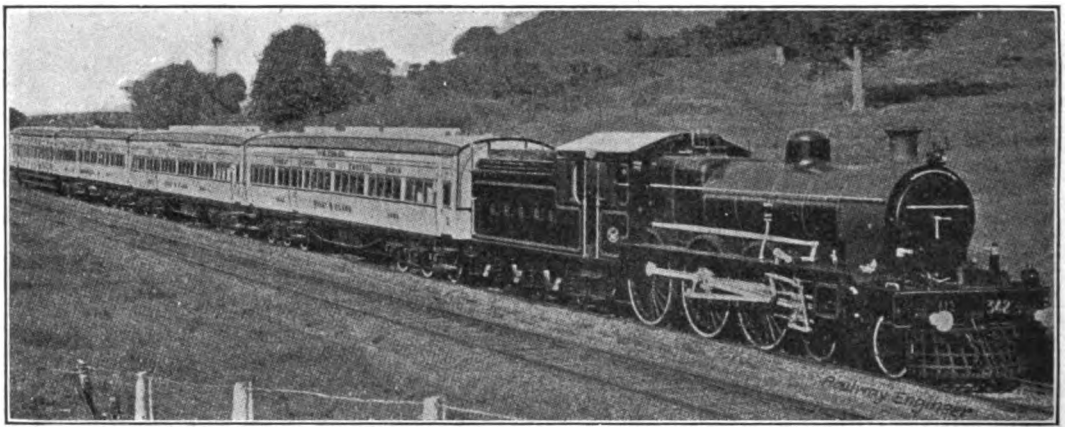
hence require less frequent renewals and changes in the roadbed.

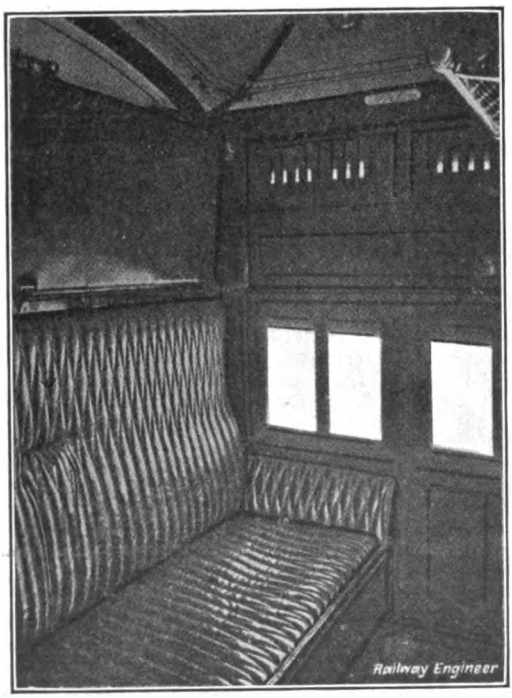
(4) His final point, and the one which is most important, is that if the cost of creosote advances appreciably in price it will probably result in stimulating the output in the number of ties treated with zinc chloride, and stunt the production of coal tar creosoted ties.

LUXURY IN INDIAN PASSENGER SERVICE.

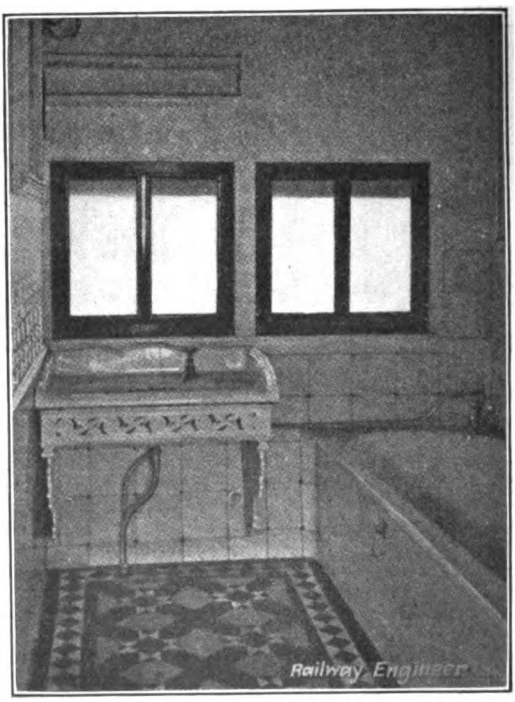
RAILWAY men will be interested in the accompanying illustrations showing the luxurious equipment operated in connection with the service between Bombay and Delhi, India, which are herewith produced from the *Railway Engineer*. This train is operated as a weekly boat express in connection with the P. and O. mail steamers. The train, as ordinarily constituted, consists of two first class corridor carriages, one restaurant car and one third class car. As can be judged from the accompaying illustrations, the interior fittings are of the most luxurious character, comparing most favorably with the latest types of car in use in this country.



P. AND O. BOAT EXPRESS, RUNNING BETWEEN BOMBAY AND DELHI, INDIA.



INTERIOR OF COUPE COMPARTMENT ON P. AND O. BOAT EXPRESS.



INTERIOR OF LAVATORY ON P. AND O. BOAT EXPRESS.

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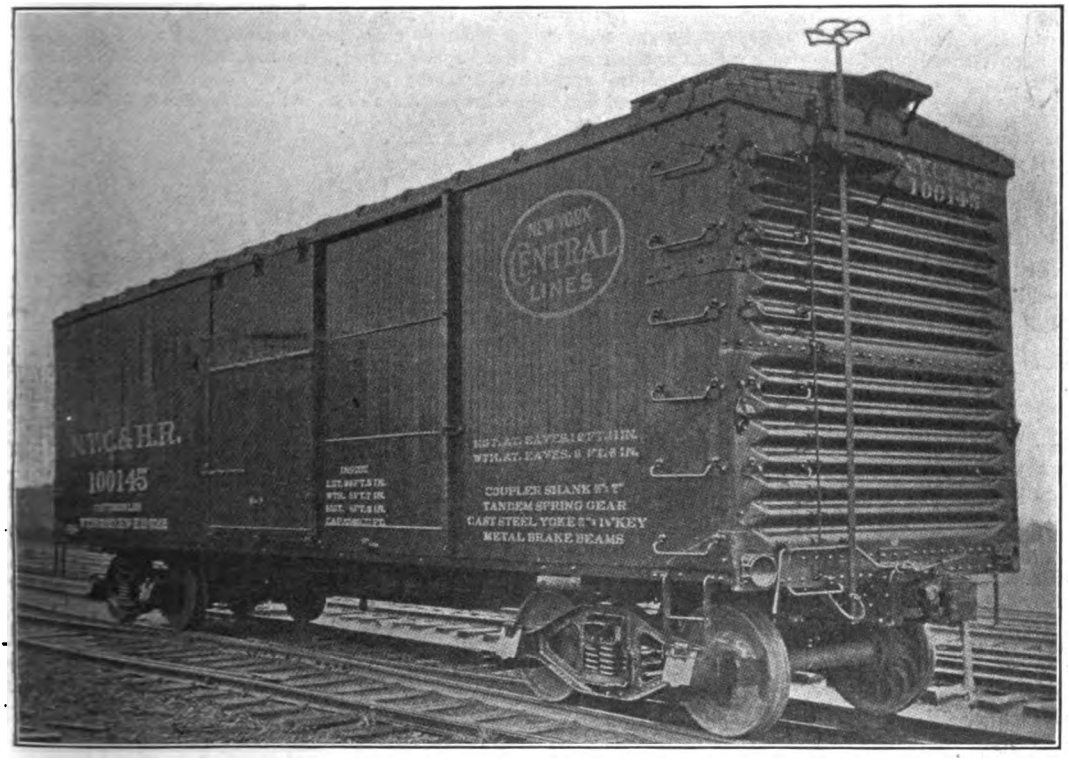
STEEL END FOR BOX CARS.

A NEW type of car end has recently been evolved and is under trial on the New York Central system. The outward appearance of the new type of end is shown in the accompanying illustration. The New York Central system has been endeavoring to eliminate the losses due to weak ends by heavy reinforcement of the wooden ends, but these efforts have not been entirely satisfactory. Accordingly, the steel end was devised and has been placed on several hundred cars. The results thus far secured are most gratifying. Its greater strength as compared with the wooden end prevents damage to the car and its contents because of shifting loads in transit. The steel end construction is lighter than the standard wooden construction by over 250 pounds, while the elimination of end posts increases the inside length of the car by about one foot. As will be seen, the end is made in two parts, facilitating the work of erection where crane facilities are not available and also the repair of the end in case of accident.



STEEL END APPLIED TO A NEW YORK CENTRAL WOODEN BOX CAR.

VALUABLE EXPERIMENTS WITH FREIGHT CAR TRUCKS.

PROFESSOR L. S. ENDSLEY, of Purdue University, has announced the preliminary results of an extensive series of tests to determine the frictional resistance of various types of freight car trucks. The tests were conducted on an arch bar truck and an Andrews side frame truck, both of standard design, the former weighing 22,886 pounds and the latter 20,300 pounds. Thirty-two different wheels were used in such combinations as to make ten sets. New, medium new and old wheels were used so as to make as wide variation in wheel conditions as is met with in practise. One of the purposes of the tests was to determine the effect of the different degrees of curvature upon frictional resistance. The average results were as follows:

Track	Mated Wheels	Non-mated New and Medium New	Non-mated Old	Non-mated Medium Old	Special No Coning
Tangent	6.90	7.53	12.82	9.96	14.25
3 deg. curve ...	8.43	7.99	19.50	14.08	21.27
6 deg. curve ...	10.40	11.43	30.03	20.22	33.79
12 deg. curve ...	20.10	25.20	37.70	28.16	45.97

It will be seen that the condition of the mating of the contours has a very important bearing upon the frictional resistance of a truck. The tests which were made in the first week of November threw some interesting light on the comparative frictional resistance resulting from the use of winter and summer oils. In the 146 tests made, the average resistance from the summer oil was taken at 14.77 pounds per ton as contrasted with 8.41 pounds per ton for the winter oil. The tests further show that the frictional resistance of a truck equipped with wheels of average contour on new rails is from 10 per cent to 25 per cent less than for the same wheels on old rails. Where old wheels with high flanges are used, this tendency is not apparent. A truck equipped with old wheels and high flanges gives a frictional resistance of approximately 100 per cent higher than is given where the truck is equipped with new wheels. Wheels which are exactly mated give a much lower resistance than those which are

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mis-mated. The coning of wheels is of great value in reducing friction on low degrees of curvature. A truck constructed so that it will not get out of square will give less friction on a great degree of curvature than a truck which does not remain square.

LIGHTING SPECIFICATIONS FOR POSTAL CARS.

THE sub-committee on the Relation of Railway Operation to Legislation has issued its Bulletin No. 44 dealing with the subject of lighting specifications for full postal cars. These specifications are in a sense supplementary to the specifications approved by the Postmaster General on March 28, 1912. The present specifications, which have been approved by the Postmaster General, are the result of comprehensive and scientific tests made by the Baltimore and Ohio under the supervision of its Electrical Engineer, Mr. J. H. Davis. The specifications deal with the matter of the construction of lighting systems, the proper location of light units, the determination of minimum and maximum initial illumination values permissible in the various parts of the car and the proper type of emergency lighting system for such cars. It is expected that with the equipment of mail cars under these specifications, the maximum of efficiency as regards the provision of light at all points for railway mail clerks, will have been attained.

Electrical

Electrification of Steam Roads.

ONE of the most important developments of the month is the announcement by the Chicago, Milwaukee and Puget Sound Railway Company of the immediate electrification of 450 miles of the main line between Harlowton, Montana, and Avery, Idaho, comprising the portion of the mountain division in which the heaviest grades are encountered. This company, it will be remembered, is the subsidiary of the St. Paul system organized to build its line to the Pacific coast. The work of electrification, the contract for which will soon be let, and the definite cost of which has not yet been fully determined, is another step in the direction of more economical operation by the large railway systems, particularly in the district where heavy grades prevail. While plans have not been definitely made, it is probable that a 2,400 volt system of overhead transmission will be used. Regeneration is being seriously considered. It is expected that installation will be begun within eighteen months and the completion rushed.

The plan, as it is outlined by the St. Paul management, provides that a large part of the power for the operation of the St. Paul line is to be purchased under a long term contract from the Great Falls (Mont.) Power Company, which is developing power at Great Falls, where 125,000 horse power energy is available. This power company has for several years been endeavoring to secure from the Government the permanent right to maintain a transmission line across the public domain. The best that it was able to secure was a permit, revocable at any time. The St. Paul was unwilling to invest millions of dollars in electrification work if the supply of power might be shut off at the whim of the Government. After prolonged negotiations, Secretary Fisher, as head of the Department of the Interior, has granted to the power company a fifty-year franchise for the construction of its transmission lines, under the provisions of the Act of March 4, 1911. The Great Falls Power Company is to have three substations along the line at points to be hereafter determined. In addition to the power purchased from the Great Falls Company, two other corporations are to furnish a large amount of energy. The Montana Power Transmission Company is to erect five stations at points to be later selected, while the Thompson Falls Power Company will install one station. This corporation has under contract a 50,000 horsepower hydro-electric station at Thompson Falls, Montana. Energy will be supplied by the power companies at 110,000 volts and 60,000 volts. It is understood that the St. Paul will use an overhead system of power distribution.

Southern Pacific Electrification in Oregon.

IT is announced that unless further and unlooked for delay is encountered, The Portland, Eugene and Eastern Railway Company's electrified line between Corvalis and Portland will be in operation by June 1st. This company is a subsidiary of the Southern Pacific system. The work is in an advanced stage, the line between Monroe and Eugene being practically completed.

The Economic Side of Electrifying Heavy Grades.

MR. A. H. ARMSTRONG, of the Railway Department of the General Electric Company, in an article in the *Electric Railway Journal* of January 4th, outlines in an interesting fashion the economic advantages which are to be attained through electrifying steam railroads, particularly where heavy grades prevail. Without going into the technical information so copiously assembled by Mr. Armstrong, or analyzing the steps by which he reaches his conclusion, it is interesting to note the advantages which he claims for electric traction. In the first place, he shows by a compilation of experience, that it is impossible to operate on a practical basis steam engines on heavy grades with the speed which is possible with electrical equipment. Using the performance of the electric locomotive as a standard, he finds that a simple locomotive on a two per cent grade will haul about 57 per cent of the total tonnage of the electric, while the Mallets will pull about 80 per cent. As against a speed of fourteen miles per hour for the electric locomotive, the simple engine will give a performance of 7.35 miles per hour and the Mallet will attain 6.38 miles per hour. The electric locomotive will show an elapsed time on a mountain division of 220 miles in 13.72 hours as contrasted with the steam engine's performance of 18.65 hours. In addition to these

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advantages, Mr. Armstrong contends that the electric locomotive is more reliable, more rugged and is more uniform in operation than the steam locomotive; that it can be operated twenty-four hours in the day at a stretch, if necessary; that no time is necessary for coaling or watering, and that the fire risk with such engines is much lower. The aggregate of the savings from the use of electrical equipment will, under most conditions, more than offset the increased capital investment.

TERMINAL IMPROVEMENTS.

Opening of the Grand Central Terminal.

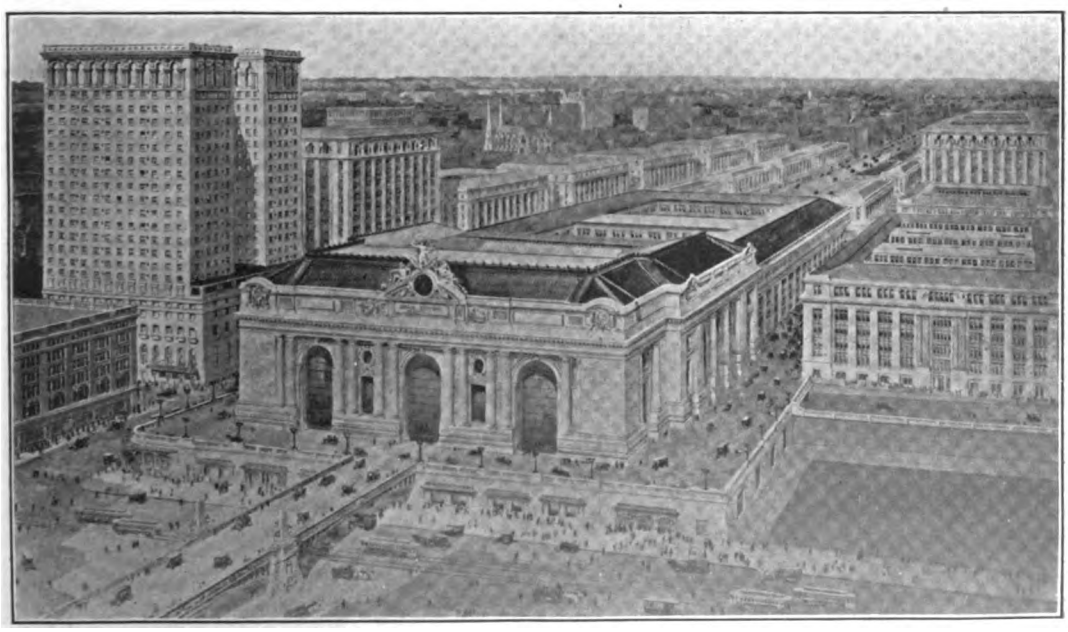
THE New York Central Lines on February 2nd, threw open the doors of its new Grand Central Terminal in New York. This great structure expresses the best thought and highest skill of architect and engineer and is a worthy companion to the Pennsylvania Railroad's terminal located only a few blocks away. In the construction of this monumental gateway, the dominant idea has been to combine beauty and magnitude with convenience and serviceability.

Construction has been conducted under the most difficult conditions. While it is a comparatively easy matter to dig a hole, lay tracks and put up a building, it is an entirely different matter to rebuild a station under traffic, change the entire plant so that no vestige of the old remains and keep 800 trains running and handle from 75,000 to 100,000 passengers a day. This is exactly what the New York Central has accomplished, but not without solving the most intricate engineering and operating problems. A single example will illustrate how well these problems have been worked out. During the eight days from August 30th to September 6th of last year, which included Labor Day, the number of people in and out of the terminal totalled 944,000. There were 4,826 trains handled during this same period, with an average delay of but twenty-one seconds per train.

The employment of electricity instead of steam as motive power has enabled the New York Central in building its beautiful terminal, to start the development, at the same time, of a civic center, of which not only the citizens of New York, but the entire country, may feel proud. The tracks have been depressed below the street level, thus reclaiming about twenty city blocks, and throwing the entire area open for building purposes. On this land will be constructed handsome commercial buildings, office structures, hotels, apartment houses, club houses, etc., instead of a steam and smoke field railroad yard, which would be necessary under steam motive power.

The exterior of the main terminal building is granite and Indiana limestone, and in its construction the architects had in mind an expression of the old terminal idea, which is a gateway to a city. The central part of the facade is in the form of a triumphant arch of monumental proportion, surmounted by the statuary group representing Progress, Mental and Physical force.

One of the unique features of the building is the overhead street. It is by this street that Park Avenue (which is carried over 42nd Street on a viaduct) passes around the station and continues north from 45th Street. Inside the main terminal building are the waiting room, concourses, baggage rooms retiring rooms, information bureaus and other features of a railroad station. The total area of the rooms for the public is six acres and 30,000 people can be accommodated therein at one time without crowding.



GRAND CENTRAL TERMINAL, NEW YORK, WHICH WAS OPENED TO THE PUBLIC ON FEBRUARY 2.

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The outbound concourse, the principal feature of the main building, is a magnificent room 275 feet long, 120 feet wide and 125 feet high. It is finished in Botticino marble and buff-tinted stone and it contains ticket office, baggage checking booth, parcel room, information bureaus etc. These facilities are so arranged that the movement of the traveler is a progressive one; the ticket window coming first, the Pullman window next, and then the baggage checking office, etc. Another feature is the arrangement of train gates and indicators. Immediately upon entering the concourse the train gates are in full view and the indicators so conspicuous that the desired track and train can be located at once from any part of the room. The same care in planning the concourse has been exercised in making it easy to enter and leave the trains by the adoption of high station platforms, which are on a level with the car platforms.

Underneath the main concourse is the suburban concourse, which has about the same dimensions excepting as to height of ceiling. The most beautiful and striking feature of the suburban level is the main incline walk or ramp from the subway to the concourse. It has a marble corridor, forty feet wide, descending at a gentle slope between the main waiting room and the concourse.

Underneath the lower level of the tracks are two transverse subways. Outgoing baggage is loaded on electric trucks and sent down by huge elevators to the baggage subway. The trucks are then sent from the subway and lifted by elevators to the track level from whence they are transferred to the designated train. By this arrangement the passenger platforms are kept free of baggage trucks.

No description of the terminal would be complete without reference to the all electric signal system. The main signal tower is located at 49th Street. This tower is a four story building, below the street level and houses the interlocking machines by which the signals and switches are operated. The machine from the suburban level has four hundred levers each of which operates a signal. On the floor above is a machine which has three hundred and sixty-two levers operating the signals and switches on the street level. To each forty levers a man is assigned who works under the instruction of a train director, who, in turn, decides upon the track that each train is to be placed. The movement of the train is indicated by little electric lights on a chart which is a fac-simile of the track layout of the yard. As a train passes over the switches the lights on the chart are extinguished and not relighted until the train has passed over the switch on to the next one. The directors in these two towers control the movement of 800 trains in and out of the terminal each day.

Another new feature of the terminal is the system of advising the gatemen on the concourse when to open the gates and admit passengers to the trains. An electric lamp is sunk in the hand rail in front of each gate and when the train is ready to receive passengers the conductor presses a button, illuminating this lamp, thereby notifying the gateman that all is ready. At the moment the train is due to leave, the gateman will close the gate and press a button located on the same hand rail, which will illuminate a lamp on the platform near where the conductor will stand, thereby notifying him that the gate is closed and he may proceed.

An unusual feature of the new terminal is the elimination of stairways, accomplished by the use of ramps, or inclined ways, thus providing for the movement of vast crowds from point to point without confusion. This is an arrangement infinitely better than stairways, which are not only a nuisance, but dangerous, when traversed by large crowds. The grades of the ramps were determined after a number of interesting experiments. Temporary ramps were built and all sorts of people walked up and down—fat men with suit cases, lean women wearing long skirts and arms filled with parcels, school children with bundles of books—and as a result very easy grades were established; in fact, a passenger to or from the express level will hardly be conscious of the fact that there is any grade at all between the street level and the train platform. The ramps to the suburban level are of necessity a little steeper.

All these inclined ways are located in direct lines of traffic so that the immense crowd that moves to and fro will never have to turn any corners or turn around and go back. In other words, to handle the millions that will sweep back and forth through this gateway, everything is arranged to avoid all possible friction or confusion. It will not be necessary to teach people where they should go, they will naturally move in the right direction. That is the main thing to be considered in handling a big crowd day after day.

Another feature is the complete segregation of through and local inbound and outbound traffic. This is accomplished by having separate waiting rooms and concourses for the local and through business and a separate station for the incoming traffic, and eliminates at once all counter currents of travel and the confusion resulting therefrom.

The tracks are arranged on two levels, the upper for through business, the lower for local, and both are connected with loops which circle around under the main building. After the passengers are unloaded the trains are taken around the loop, the baggage cars shunted to special baggage tracks for unloading, the train proceeding to the storage yard, or, if a local train scheduled to leave within a short time, it is placed adjacent to one of the outgoing train platforms, ready to receive passengers.

New Office Building for the Burlington.

THE headquarter offices of the Chicago, Burlington & Quincy R. R. in Chicago are being moved into a new general office building, at the corner of Jackson boulevard and Clinton Street. The building fronts 151 feet on the boulevard and 175 feet on Clinton Street, and it is 15 stories high. It is of the Gothic style of architecture, built of steel framing, enclosed and protected on the outer walls with enameled terra cotta. There are eight passenger elevators and one freight elevator and a complete system of tubes, operated by compressed air, for the transmission of telegrams, mail, etc., between the various departments, and a well-equipped mail room located on the ground floor. The indirect system of lighting is used. A com-

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NEW OFFICE BUILDING OF THE BURLINGTON AT CHICAGO.

plete power plant, including a large battery of automatically stoked safety boilers, is located in the basement.

The building houses approximately, 2,000 employes, and the cost of the ground and structure was about $2,000,000.

Large Ore Dock at Duluth.—What it is said will be the most costly iron ore shipping dock in the world will be constructed by the Duluth, Missabe & Northern Railway Co., at Duluth, Minn. The dock will be of concrete and steel and will cost about $2,750,000. It will have 384 pockets of a storage capacity of 300 tons each. The dock will be 2,300 feet long, 56 feet wide and 80 feet high. There will be an independent approach half a mile in length, connecting with the main line of the Missabe road. The Duluth & Iron Range Railroad is planning a number of improvements on its ore docks at Two Harbors. Sixteen pockets will be added to one of its docks, adding a storage capacity of 4,000 tons and giving the railroad a total capacity of 200 000 tons storage at Two Harbors.

St. Paul Station at Tacoma.—The St. Paul expects to have one of the finest passenger stations and office buildings west of Chicago and St. Louis. It will be built at Tacoma, 280 feet square, will cost $500,000. It is to be used by the Tacoma Eastern, the St. Paul and possibly the Northern Pacific.

Santa Fe Terminals at Denver.—The Atchison, Topeka and Santa Fe has purchased land in Denver, Colorado, at an estimated cost of $500,000 for the purpose of building into the heart of the city and establishing its own terminal. It proposes to spend an additional $2,000 000 during 1913 in constructing tracks and freight houses in the business section of the city and in South Denver and Englewood, and in improving tracks between Denver and Pueblo.

More Land for Freight Terminals at Chicago.—It is announced that the Central Terminal Railway at Chicago, a subsidiary of the Canadian Pacific, has acquired 13 additional parcels of property for $525,000, to be used in connection with its freight terminal to be erected at Canal and 15th Streets.

Proposed Relief for Freight Congestion at Chicago.—A comprehensive plan for the interchange of transportation of freight, one that will relieve congestion in the downtown terminals through the use of facilities afforded at the yards at Clearing, Ill., has been evolved by W. H. Lyford, general counsel for the Chicago & Eastern Illinois Railroad.

Expenditure of a large sum of money is involved in completing the scheme. It is proposed that warehouses be erected where less than carload freight will be assembled and loaded. Instead of freight being trucked about from one loading platform to another, it is proposed by Mr. Lyford that moving sidewalks be used to carry consignments from the loading platform of one railroad to that of another.

In discussing the plan Mr. Lyford said: "It is proposed to remove from these downtown terminals all the freight handled by subways, lighters and lake boats, and all of that which is now handled by wagon for a distance of more than one mile from each terminal station, and to concentrate all this freight at the common transfer facilities just outside of the city limits, between Sixty-third and Seventy-first Streets. The freight subway will extend trunk lines from the transfer stations and deliver there all the freight which it now sends to the downtown terminals.

"Lighterage freight will be transferred to freight cars at some convenient point and thence moved to the transfer station. Lake freight will be transferred to railroad cars or lighters at the new harbor about to be constructed at the mouth of the Chicago River, and thence moved to the transfer station. Joint receiving stations for all roads will be established on the tracks of each company in every industrial centre throughout the city. At these stations freight will be received for all companies, loaded into large trap cars and moved promptly to the transfer yard.

"By the co-operation of all the railroads in the use of common transfer facilities pressure upon downtown freight terminals will be removed, and the present terminals will be adequate to handle all of the freight which can be delivered there with more economy than to the common transfer yard."

Big Railroad Shops for Canadian Pacific.—The second largest railroad repair shops in the world, those of the Canadian Pacific Railway, near Calgary, Alta., are being built, with a speed which breaks all records. They will cost $2,500,000, and will be completed within twelve months of the day when the prairie was broken and work begun. The shops when completed, as expected, will employ 2,500 men, and a town is growing up around the shops named Ogden in honor of Vice-President Ogden, of the Cana-

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dian Pacific Railroad. The electric power for the plant will be purchased from the city of Galgary.

River Front Railway for New York.—Secretary of War Stimson has been informed by port officials of New York that in connection with the construction of the proposed 1,000-foot piers to the north of the present center of congestion in the Hudson River, it is proposed to construct a marginal railway along the shore ends of the piers. This railway it was stated, will be capable of giving an express service. Secretary Stimson let it be known that he was much opposed to any extension of the piers in the Hudson River on either side that would further encroach upon the channel, and that the most he would be willing to allow would be such a lengthening of the existing piers or the construction of such new piers as would not extend beyond a straight line connecting the most prominent points on shore.

The Lehigh Valley Railroad is anticipating terminal developments about to take place in New York Harbor, and also the impetus to be given to handling the grain trade once more in this part of the country, by its improvements in the Greenville section of Jersey City. The Lehigh Valley has for years been improving its facilities for handling this grain traffic, in the matter of cars, service and terminals. The latest addition to equipping for this, is the grain elevator at the National or Lehigh docks on the west shore of New York Harbor. This is in addition to the transfer elevator already at the National docks, which will remain in operation with existing barge storage facilities. The capacity of the new elevator will be 443,000 bushels which can be increased as demand for enlargement arises. The cost of the elevator will be $2,000,000 and it is expected to be completed about May 1st.

At a meeting of the representatives of the eastern trunk line railways, called by President Ralph Peters of the Long Island Railroad, to consider plans for operating the South Brooklyn water front terminals after same have been acquired by the city, on a basis of cost and in the interest of the trunk lines, the following committee was appointed to make a complete investigation of the proposed development and to prepare plans and scope of a union company to handle the property on a co-operative basis: Chairman, Ralph Peters, for Long Island and Pennsylvania Railroads; J. C. Stuart, Erie; W. G. Besler, for Jersey Central; A. H. Smith, for New York Central, and J. A. Middleton, for Lehigh Valley.

The above representatives also adopted resolutions endorsing the action of the city by the Board of Estimate, and of the Chamber of Commerce in approving a plan to develop a city-owned railroad along the South Brooklyn water front, connecting the piers, warehouses and terminals of the Bush Terminal and the New York Dock companies. The railroads represented at the meeting testified in favor of the plan submitted by the city representatives with the condition that details can be developed to the mutual interest of all concerned.

Switching Yards for the Northwestern.—Owing to the congested condition in the freight yards of Racine and Kenosha, the Chicago & Northwestern Railway Company will expend $400,000 in the purchase of 260 acres of land and the building of switching yards midway between the two cities.

Connection of Boston Railroad Stations Planned.—Press reports state that plans for the construction of a four-track line from the South Station to the North Station, making a direct connection between the New Haven and the Boston & Maine roads, and abolishing the North Station, have been practically completed. This means that the New Haven and the Boston & Maine in Boston will probably be electrified. The project involves an expenditure of at least $50,000,000.

The Interstate Commerce Commission

Commission Elects New Chairman.

FOLLOWING the resignation of Chairman Knapp from the Interstate Commerce Commission in 1910, the Commission have adopted the practice of electing one of their members as chairman for a period of one year, and, in accordance therewith, Commissioner Franklin K. Lane was elected on January 7, 1913, effective January 13, 1913, to be chairman for the ensuing year.

The several chairmen since the organization of the Commission have been as follows:

Hon. T. M. Cooley from April 1, 1887, to January 12, 1892;

Col. W. R. Morrison from March 19, 1892, to December 31, 1897;

Hon. Martin A. Knapp from January 11, 1898, and annually re-elected for each successive year until January 13, 1903, when re-elected to continue until otherwise ordered. Mr. Knapp resigned from the Commission some time in 1910.

Hon. Judson C. Clements was chairman for the year 1911.

Hon. Charles A. Prouty was chairman for the year 1912.

The date of exipration of the terms of the several Commissioners is as follows:

Judson C. Clements, December 31, 1913.
Charles A. Prouty, December 31, 1914.
Charles C. McChord, December 31, 1915.
Franklin K. Lane, December 31, 1916.
Balthasar H. Meyer, December 31, 1917.
James S. Harlan, December 31, 1918.
Edgar E. Clark, December 31, 1919.

Commissioner McChord was appointed to fill the vacancy of the unexpired term of Judge Knapp.

Commissioner Meyer was appointed from January 1, 1911, for the full term of seven years and

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FRANKLIN K. LANE,
ELECTED CHAIRMAN OF THE COMMISSION FOR 1913.

succeeded Commissioner Francis M. Cockrell, whose term had expired.

Commissioner Clark's term expired December 31, 1912, but he has been reappointed by the President and it is fully anticipated that his appointment will be confirmed by the Senate.

The Western Classification Decision.

IN many respects one of the most important matters that the Interstate Commerce Commission has yet decided, was made public on December 31st in its opinion 2110, "In the matter of the suspension of Western Classification No. 51."

The importance of the case consists in the many issues and the consequences involved rather than in the Commission's orders, for it must be admitted that the larger questions are discussed but not determined; probably it was the part of wisdom at this time to counsel with and not judge between the contestants.

Western Classification No. 51 was to have become effective February 15th, 1912; it was suspended by the Commission the full statutory period of ten months and was voluntarily postponed by the carriers for two months, so that it may come into effect one year after the date intended. Nowhere in the history of freight classifications can there be found a parallel for the storm and stress of this period. The Commission's record of the case is a story of conflict; at times between carriers and commercial interests, or among the commercial interests divided on territorial lines; at other times between carriers and state railroad commissions, or among the commissions of the several Western states divided as the influence of commerce interests came into play.

Aside from the rules there were estimated to be between 1,500 and 2,000 changes, of which less than half represented advances.

The greater part of these changes was the result of the movement to effect uniformity of freight classifications throughout the country and this case has served to bring into prominence many of the results that must follow the adoption of uniform classification provisions.

The Commission's report of 160 pages divides naturally into four parts, a discussion of classification history, theory and practice; the consideration of new classification rules; the determination of complaints respecting individual descriptions of articles in the classification; and the suggestions for the guidance of the carriers in the future with respect to classification matters.

Logically following its declaration that "classification is an art or science in itself," the Commission holds that "a compilation of classification units" (intended to express the relation of various classified articles with respect to weight, space and value) "just as far as practicable for every item in the classification would doubtless be of substantial value"; and that "a body of experts in classification should hear and know everything and then form their conclusions. The conclusions thus formed should not be lightly set aside."

The introductory statement that "The two really momentous questions involved in this proceeding are the questions of minimum weights and of mixtures" seems to refer to the gravamen of the complaints and not to the relative importance of the issues involved in the matter of classification uniformity. The Commission's expression is evidently based upon the popular conception, for as might have been expected, the effects rather than the causes came prominently into the discussion, as evidenced by the burden of complaint. The questions "where carload ratings are necessary" and the "relation between carload and less than carload rates" are fundamental and of greater importance, because these set up and establish the measure of discrimination against the small shipper and in favor of the large shipper, based upon a quantity consideration, while the carload minimums and mixtures are "accessories after the fact" if there be such a thing in other than the legal sense.

The Commission has heretofore consistently opposed any theory of inherent right to carload rates but at this time the possibility of a change of view seems to be foreshadowed in the statement "that a carload rating should be established for a commodity when that commodity can be offered for shipment in carload quantities, unless public interests or other valid considerations require the contrary." What the "public interests or other valid considerations" may be is left to conjecture, but the question is again referred to "assuming a proper relation between carload and less than carload rates, the establishment of carload ratings whenever carload quantities are offered will, we believe, meet the needs of new and growing lines of industry without discrimination."

The view that "an excessive difference between the carload and less carload rates on the same commodity results in undue preference to the carload shipper" leads to suggestions respecting "the establishment of just relations between carload and less than carload quantities in accordance with some consistent principle throughout the classification." These suggestions respecting the establishment of carload rates and their relation to less carload rates, mark the opening of a new field.

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While the conclusions respecting carload mixtures do not by any means dispose of this time-honored problem, the Commission has displayed wisdom in the reasoning upon which it maintains the "status quo," which is summed up in the ninth paragraph of the syllabus:

> "Liberal provisions should be made for mixtures. Artificial restrictions upon mixtures are restrictions upon the freedom of trade and commerce, with a tendency to militate against the small man. Mixtures result in a better utilization of car space; they lessen the demands upon terminal properties, they decrease the expense of operation, and facilitate the movement of freight. A brief statement is made of the arguments for and against the incorporation in Western Classification of rule 10 of Official Classification."

Carload minimum weights should be based upon the commercial as well as physical conditions, and after all, this is the course the carriers have generally followed. In the several decisions respecting descriptions of articles, the Commission supports the efforts to effect economical transportation, as represented in heavy minimums, and approves increased ratings where substantial reductions in the minimums have been necessary because of physical or commercial conditions brought to light.

The rules of a freight classification have a much broader application than the classification proper, in that they furnish a body of regulations that apply to commodity tariffs as well as class rate tariffs.

The trivial objections made to the proposed rules, in view of their broad scope, make it evident either that the complainants' study of them was superficial or that the rules represent to an unusual degree the best thought respecting traffic regulations. On the part of the Commission there is manifest a desire to aid the carriers in making effective the practices and regulations that make for fair dealing and safe transportation, and many of the suggestions will be of value as making for proper classification construction and reasonable interpretation.

In any complicated matter such as this body of rules there is ample opportunity for a misunderstanding of conditions and intent. It would not be surprising if some of the suggested betterments would fail of their purpose, especially where they have been based on objections made by some of the state representatives whose knowledge was limited to what had been gathered in the effort to destroy what they possibly could not comprehend. That such a possibility has been foreseen is indicated by this expression:

> "Where the number of changes, however, is as great as is involved in this one proceeding it is apparent that no body of men can, in a relatively short time, give such consideration to each item as will enable them to express their conclusions with reference to each with that degree of confidence as to their correctness as would be desirable. While the record is full, and apparently complete, in regard to many items, there are numerous others with reference to which there is no direct testimony nor other evidence; and we wish to state at the outset that we shall hold ourselves in readiness to modify any of the conclusions or suggestions herein expressed just as soon as sufficient reliable information making such modifications just and proper may become available."

The compass of this review will not admit any detailed consideration of the rules, but these features may be noted:

Rule 6 (B) deals with the sliding scale of minimums for light and bulky freight and in its consideration the Commission reaffirms the principles of its Rule 66 and of its several opinions that culminated in Noble versus Baltimore and Ohio Railroad Company, 22 Interstate Commerce Commission 432.

Rule 7 (C) makes detailed provision for marking freight, a question on which there has been much difference of opinion in the past, but the conclusion (except as to Section 2 (e) which is really a part of Rule 24) is summed up in the disapproval of the requirements for metal eyelets in tags.

Rule 8 provides a set of elaborate specifications for packages which have been strongly objected to because they are thought to be too technical for universal use, but here the Commission's record is surprising in that it finds them too indefinite. "Both sections are new. Objections came from many quarters, chiefly on the ground that the provisions are too general and indefinite, and consequently too much is left to the personal judgment of the individual agent. We think there is much force in this contention." It is probably true that if the carriers had made strict and definite rules, they would have been attacked as being too technical and severe.

In respect of dunnage the Commission is controlled by the principles announced in several lumber cases, and it is held that the liberal practices of the past respecting weight allowances should continue.

Where the description of articles is reached, the consideration, having specific complaints to proceed upon, becomes more definite. At the outset the Commission marks and disapproves a tendency "to apply a higher rating on commodities in packages in barrels or boxes than on commodities in bulk in barrels or boxes." The carriers' side is that the goods in the small packages are usually shelf goods of the higher values, while those shipped in bulk are not only generally the cheaper, but that bulk packing is frequently the raw material for subsequent manufacture or repacking. The Commission's view is that the commodity in the smaller package represents more security than when in bulk and that if the values are close, the packages should be rated alike.

In upsetting a practice of the carriers of long standing the Commission is apparently controlled by "the cost of service" considerations and perhaps attaches too little importance to "the value of service." However, there is compensation for the carriers in the Commission's view that "the carrier may be justified in prescribing a higher rating on articles packed in a less than in a more secure package" and again:

> "Packing Requirements.—The propriety of increasing the rating upon an article when it is offered loose or in bundles with practically no protection as compared with the rating of the same commodity when boxed or otherwise fully protected, can not be questioned. A package which is less desirable from a trans-

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portation standpoint deserves to be given a higher rating than one which is more desirable. The approval of this rule, however, does not sanction disproportionate and arbitrary increases in the rating of an article when offered in a less desirable package. There should be some relation between the increased rating and the increase in the risk, difficulty of handling, and other proper considerations."

Perhaps the most important of the decisions respecting descriptions were those: Affecting the agricultural implement minimum, where the carriers proposed 24,000 pounds subject to the increased minimums for larger than standard cars as provided in Rule 6 (B), the Commission holding that the 20,000 pound minimum, which is generally operative by exceptions to the classification in the West, should be applied with Rule 6 (B). The Commission also brought about an understanding that binders' twine should be continued in the agricultural implement mixtures.

The carriers' attempt to remove the rating for candy based on low value, by reducing high priced candy from first to second class and advancing cheap candy from third to second, was approved.

On machinery there was a strong protest against an attempt to restrict the mixtures currently permitted and this change is not approved, but the Commission does approve the application of Rule 6 (B) where cars larger than standard are used.

Canned goods had been the subject of a revision that proposed a separation of fruits from vegetables, while including with canned fruit the heavier preserves, jams, jellies and the like which have not been in the mixture. The shippers' protest results in a voluntary restoration of the mixture including the preserves, etc.

Paper is one of the most difficult commodities for which provisions have to be made, and the specifications proposed in this case were the source of much contention. The Commission does not support an attempt to draw a line between mill sizes and the smaller sizes cut for commercial forms or letter paper.

These are referred to as among the more important of the 195 decisions respecting descriptions, that are separately discussed in the Commission's opinion, but it is evidently expected that the principles laid down here and there, will be applied throughout the classification, presumably in cases concerning which there has been no complaint.

The declarations of the Commission in the opinion should do much to secure recognition of the growing importance of the work of the classification committees and to dignify their proceedings. It is within the bounds of reason that such work, proceeding more and more under the guidance of the Interstate Commerce Commission will come to occupy a middle ground between the carriers and the Commission, hearing the public, and reporting recommendations to the carriers on the one hand and reporting conclusions (and reasons, if necessary) to the Commission. Indeed the Commission points very directly to such a possibility:

> "The making of a freight classification is a great public function. In the past the hearings before the classification committees have been semi-public rather than public, and in a certain sense they have been private, although in later years the tendency has been toward greater publicity."

> "Procedure in the Future.—The formal hearings of classification committees hereafter should be made public, after due notice to the interested parties, including state commissions and the Interstate Commerce Commission. A record of the facts and arguments for and against a certain classification should be kept. As rapidly as items, or groups of items, have been disposed of by the classification committee they should be published in accordance with law. In case of a protest to this Commission, the record made up before the committee should be properly transmitted to the Commission. On the basis of this record, supplemented when necessary by additional inquiries, the Commission will be able to decide whether or not to suspend a proposed change in the classification. We believe that this manner of procedure will obviate nearly all formal proceedings in the future and will confine investigations on the part of this Commission to the relatively few and large matters decisive of principles and possibly also affecting great material interests.
>
> "While in this report there are suggestions and conclusions which probably would be equally applicable to classifications other than the one under consideration, in the territories to which they apply, these suggestions and conclusions are specifically applicable only to the classification herein considered and the territory in which it applies, since the others are not before us in this proceeding."

These outlines for the guidance of classification committees, that really amount to a forecast of classification practice, in our opinion, completely overshadow every other result of this case.

Therefore, it is the prophecy rather than the judgment that marks this as one of the most important opinions that has yet proceeded from the Interstate Commerce Commission.

Private Wire Contract Investigation.—The Commission has issued a notice that it intends to investigate the private wire contracts of the Western Union and the Postal Telegraph Companies. It has been alleged that persons other than the parties to the contracts frequently use private wires for transmission of personal messages, which is in violation of the Interstate Commerce act.

New Haven Not Responsible for Greens Farms Wreck.—No blame can be attached to the New Haven Railroad for the accident at Greens Farms, Conn., on November 6th, in which 27 passengers were injured, according to a report made to the Interstate Commerce Commission by Chief Inspector of Safety Appliances Belnap. The derailment, the report finds, was caused by the breaking of an equalizer bar on the forward truck of the dining car. There was a defect in the bar but so slight that Mr. Belnap asserts no blame can be laid through improper inspection. The track where the accident occurred is straight and the report does not blame the engineer for speeding up.

Uniform System of Accounts for Telephone Companies.

The Commission has promulgated its uniform system of accounts for telephone compan-

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ies. The act to regulate commerce invests the commission with authority to prescribe the forms of accounts to be kept by telephone companies.

Investigation of Hard Coal Rates.

The Commission has sent to all coal companies in the anthracite field, a pamphlet of questions to be answered by March 1st. next. They deal with every phase of the business and are for the purpose of an exhaustive inquiry into rates, practices, rules and regulations governing the transportation of anthracite coal.

High Demurrage Rates in California.

By a decision handed down by the Commission, the California roads were permitted to put into effect on January 6th, the increased demurrage charges in the State, applicable to interstate shipments. It is held that the roads have proven the reasonableness of these increases, and further that the advances are not discriminatory against the shippers in California in favor of the shippers in other States.

Iron Ore Rate Investigation.

A special investigation into iron ore rates in Minnesota has been announced by the Commission and will begin soon. This investigation will involve the rates and practices of the roads owned by the United States Steel Corporation and the rates granted that corporation by other roads.

ELECTIONS AND APPOINTMENTS.

Executive.

Frank Anderson, director, St. Louis & San Francisco R. R. Headquarters, St. Louis.

S. Reading Bertron, director, International Railway Company.

Frank E. Blair, director, Pere Marquette.

Ralph Budd, assistant to president, Great Northern Ry. Headquarters, St. Paul, Minn.

E. G. Connette, president, International Railway Company.

Albert John County, special assistant to the president, Pennsylvania Railroad. Headquarters Philadelphia.

D. Crombie, vice-president, Grand Trunk. Headquarters, Montreal, Que.

Oswald J. DeRousse, general assistant to the president, Pennsylvania Railroad. Headquarters, Philadelphia, Pa.

A. T. Rice vice-president, Reading System.

Marshall J. Dodge, director, International Railway Company.

D. C. Eccles, president, Sumpter Valley Ry. Headquarters, Ogden, Utah.

Samuel M. Felton, president, Pere Marquette.

C. V. Fleming, chief clerk to president, Seaboard Air Line.

Robert Garrett, director, Baltimore & Ohio R. R.

Rodman E. Griscom, director, International Railway Company.

W. J. Harahan, president, Marion & Southern R. R. & the Raleigh & Charleston R. R.

H. B. Helm, first vice-president, Louisiana Railway & Navigation Company. Headquarters, Shreveport, La.

Francis T. Homer, director, International Railway Company.

William M. Hutchison, vice-president, Union Tank Line Company. Headquarters, New York.

A. M. Ingersoll, assistant to vice-president, Puget Sound Railway. Headquarters, Tacoma, Wash.

John S. Jenks, Jr., director, International Railway Company.

M. C. Kennedy, president, Cumberland Valley.

M. K. King, vice-president, Canton Railroad. Headquarters, Baltimore, Md.

T. B. Koons, vice-president, Central R. R. of New Jersey. Headquarters, 143 Liberty St., New York City.

Julius Kruttschnitt, chairman of the board, Southern Pacific Company.

Ivy L. Lee, executive assistant to president, Pennsylvania R. R. Headquarters, Philadelphia.

W. U. Moyer, chief clerk to President Rea of Pennsylvania Railroad.

G. L. Peck, fifth vice-president in charge of transportation department, Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Pa.

Morton F. Plant, director, New Haven road. Headquarters, New London, Conn.

Joseph Ramsey, Jr., president, Wheeling & Lake Erie Railroad. Headquarters, Cleveland, Ohio.

Samuel Rea, director, New York, New Haven & Hartford.

Samuel Rea, vice-president, Cumberland Valley.

D. I. Roberts, president, United States Express Company. Headquarters, New York.

George P. Rust, vice-president, Wheeling & Lake Erie Railroad. Headquarters, Cleveland, Ohio.

A. M. Schoyer, member of board, Missouri & Illinois Bridge and Belt R. R. Co.

W. L. Seddon, assistant to president, Seaboard Air Line. Headquarters, Norfolk, Va.

Ralph E. Slaver, vice-president, Wheeling & Lake Erie Railroad. Headquarters, New York.

C. M. South, assistant to first vice-president, Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Pa.

Edward B. Taylor, vice-president, in charge of treasury and accounting departments, Grand Rapids and Indiana. Headquarters, Pittsburgh, Pa.

A. W. Towsley, vice-president and general manager, Ann Arbor Railroad Company. Headquarters, Sioux City, Iowa.

Dudley E. Waters, director, Pere Marquette.

H. R. Williams, vice-president, Chicago, Milwaukee & St. Paul. Headquarters, Seattle.

Frank Withington, chief clerk to vice-president Dixon, Pennsylvania lines.

Legal.

S. W. Fordyce, Jr., general counsel for receivers, Tennessee Central. Headquarters, St. Louis, Mo.

Walter Stokes, general attorney for receivers, Tennessee Central.

Financial.

H. B. Chamberlain, receiver, Tennessee Central. Headquarters, Nashville, Tenn.

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E. F. Cook, secretary, Union Tank Line Company. Headquarters, New York.

E. L. Gridley, assistant treasurer, Union Tank Line Company. Headquarters, New York.

E. T. Lamb, receiver, Atlanta, Birmingham & Atlantic R. R.

W. K. McAlister, receiver, Tennessee Central. Headquarters, Nashville, Tenn.

T. H. B. McKnight, treasurer, Grand Rapids and Indiana. Headquarters, Pittsburgh, Pa.

W. W. Merritt, assistant secretary, Wheeling & Lake Erie Railroad. Headquarters, Cleveland, Ohio.

Frederick V. Pitney, receiver, New Jersey-Pennsylvania Railroad Company. Headquarters, Morristown.

T. D. Rhodes, secretary, Wheeling & Lake Erie Railroad. Headquarters, New York.

H. F. Schieman, assistant treasurer, Grand Rapids and Indiana. Headquarters, Grand Rapids. Mich.

George W. Vallery, receiver, Colorado Midland. Headquarters, Denver, Colo.

H. U. Wallace, receiver, Denver, Laramie & Northwestern.

E. N. Weller, treasurer, Pere Marquette R. R. Headquarters, Detroit, Mich.

Accounting.

J. B. Brittain, first assistant to the comptroller, Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Pa.

F. A. Clark, general auditor, Erie R. R. Headquarters, New York.

W. S. Cooke, assistant comptroller, Mobile & Ohio and the Southern Railway. Headquarters, Mobile, Ala.

Frank Cotton, transit accountant, Rock Island.

A. P. Disbrow, auditor of disbursements, Erie Railroad. Headquarters, New York.

John Hurst, general accountant, Pennsylvania Lines, West of Pittsburgh. Headquarters, Pittsburgh. Pa.

C. E. Hildum, auditor of freight accounts, Erie Railroad. Headquarters, New York.

Charles W. Karcher, car accountant, Boston & Albany. Headquarters, Springfield, Mass.

M. E. Kenworthy, chief clerk, Minneapolis & St. Louis freight depot. Headquarters, Des Moines. Ia.

W. W. Middleton, auditor in charge of freight, passenger and station accounts, Mobile & Ohio and the Southern Railway in Mississippi. Headquarters, Mobile, Ala.

J. W. Orr, second assistant to the comptroller, Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Pa.

J. H. Walker, general accountant, Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Pa.

Engineering and Mechanical.

N. A. Alquist, general car inspector, Missouri, Kansas & Texas. Headquarters, Parsons, Kan.

S. Baldwin, resident engineer, Trinity & Brazos Valley. Headquarters, Teague, Texas.

G. R. Barry, division engineer, Logan Division, Pennsylvania lines.

A. J. Cassil, division engineer, Indiana Division, Baltimore & Ohio Southwestern. Headquarters, Seymour, Ind.

T. Bryce Conlyn, division engineer, Baltimore & Ohio, Southwestern. Headquarters, Indianapolis, Ind.

Robert Clemons Falconer, principal assistant engineer, Erie Railroad. Headquarters, New York.

D. W. Cross, master mechanic, Toledo, St. Louis & Western R. R. Headquarters, Frankfort, Ind.

W. D. Faucett, chief engineer, Seaboard Air Line.

H. L. Foster, road foreman of equipment, Arkansas Division, Rock Island. Headquarters, Argenta, Ark.

A. S. Going, engineer of construction, Grand Trunk. Headquarters, Montreal, Que.

R. S. Harris, supervising engineer, S. W. System, Pennsylvania lines.

W. R. Hillary, supervising engineer of the Central System, Pennsylvania Lines West. Headquarters, Toledo, O.

S. W. Hodgin, division engineer, Richmond Division, Pennsylvania Lines.

A. M. Lupfer, chief engineer, Spokane, Portland & Seattle Railway, the Oregon Trunk Railway and the Spokane & Inland Empire R. R. Headquarters, Portland, Ore.

E. F. McCrea, division engineer, C. & P. Division, Pennsylvania lines.

Michael McGraw, master mechanic, Alton. Headquarters, Bloomington.

R. R. Metheany, Jr., division engineer, Marietta Division, Central System, Pennsylvania Lines West.. Headquarters, Cambridge, Ohio.

R. J. Middleton, engineer of track elevation, Chicago, Milwaukee & St. Paul Railway. Headquarters, Chicago, Ill.

R. C. Miller, division engineer, Toledo Division, Central System, Pennsylvania Lines West. Headquarters, Toledo, Ohio.

William Miller, shop superintendent, Erie Railroad Company. Headquarters, Meadville, Pa.

H. E. Newcomet, supervising engineer, N. W. System, Pennsylvania lines.

F. J. Parrish, first assistant to the engineer of maintenance of way, B. &. O. S. W. Headquarters, Cincinnati, Ohio.

J. B. Randall, master mechanic, Louisville, Henderson & St. Louis. Headquarters, Cloverport, Ky.

E. O. Reeder, assistant chief engineer, Puget Sound Railway.

Joseph A. Rothrock, assistant division engineer, Zanesville Division, Pennsylvania Lines West. Headquarters, Zanesville, Ohio.

William C. Sealy, assistant master mechanic, Grand Trunk. Headquarters, Toronto, Ont.

John L. Smith, master mechanic, Pittsburgh, Shawmut & Northern. Headquarters, St. Mary's, Pa.

E. B. Taylor, Jr., division engineer, Eastern Division, Pennsylvania lines.

I. R. Tierney, road foreman of engines, Parsons District, Missouri, Kansas & Texas Railway. Headquarters, Parsons, Tex.

W. J. Tollerton, general mechanical superintendent, Rock Island Lines. Headquarters, Chicago.

Adam Trautman, shop superintendent, Buffalo Car Shop, Erie Railroad.

M. P. Tucker, Jr., division engineer, Akron Division of the Central System, Pennsylvania Lines West. Headquarters, Akron, Ohio.

R. E. Wallace, supervisor of locomotive oper-

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ation, Chicago Terminal and Illinois divisions, Rock Island Lines. Headquarters, Chicago.

A. C. Watson, division engineer, Zanesville Division of the central System, Pennsylvania Lines West. Headquarters, Zanesville, Ohio.

Operation.

F. H. Alfred, general manager, Pere Marquette. Headquarters, Detroit.

C. W. Akers, superintendent, Southern Division, Norfolk Southern. Headquarters, New Bern, N. C.

J. W. Anderson, assistant superintendent, Oregon-Washington Railroad & Navigation Company. Headquarters, La Grande, Ore.

M. C. G. Arthur, superintendent, Charleston Division, Southern Railway. Headquarters, Charleston, S. C.

H. S. Badgett, assistant superintendent, Orange & Northwestern. Headquarters, DeQuincy, La.

F. D. Batchellor, additional assistant to general superintendent, Baltimore & Ohio Southwestern and the Cincinnati, Hamilton & Dayton.

H. H. Barry, superintendent, Western Maryland Railway, between Edgemont, Md., and Cumberland.

R. R. Beasley, superintendent, Direct Navigation Company. Headquarters, Houston, Tex.

C. G. Bowker, general superintendent eastern lines, Grand Trunk Railway.

L. A. Boyd, superintendent, Raleigh, Charlotte & Southern. Headquarters, Boscoe, N. C.

F. L. Brendle, superintendent all main line divisions and the Baltimore terminals, Western Maryland Railway.

J. D. Brennan, superintendent, Western Division, Southern Pacific.

W. A. Brown, general superintendent, Western Division, Canadian Northern. Headquarters, Edmonton, Alta.

Steel Campbell, trainmaster, Orange & Northwestern. Headquarters, Anchorage, La.

D. B. Carson, assistant general manager, Nashville, Chattanooga & St. Louis.

S. H. Charles, superintendent Oklahoma District, Missouri, Kansas & Texas Ry. Headquarters, Oklahoma City, Okla.

Frank E. Clarity, superintendent of transportation, Denver & Rio Grande.

G. W. Clark, general superintendent, Central New England. Headquarters, Hartford, Conn.

John A. Clayton, trainmaster, Canadian Northern Road. Headquarters, Virginia.

J. G. Code, general manager, Wabash-Pittsburgh Terminal. Headquarters, Pittsburgh, Pa.

W. H. Coppage, superintendent, Louisiana Ry. & Navigation Co. Headquarters, Shreveport, La.

F. W. Cowley, trainmaster, Michigan Central Railroad. Headquarters, St. Thomas, Ont.

E. P. Croft, yardmaster, Gulf & Texas. Headquarters, Jacksboro.

D. Crombie, general superintendent of transportation, Grand Trunk Railway. Headquarters, Montreal.

W. H. DeFrance, assistant general manager, Alabama-New Orleans Transportation Co. Headquarters, New Orleans, La.

J. M. Doughty, assistant division superintendent, Galveston, Harrisburg & San Antonio. Headquarters, Victoria, Tex.

J. A. Droege, superintendent Shore Line Division, New York, New Haven & Hartford. Headquarters, New Haven, Conn.

Henry O. Dunkle, general manager, Erie lines west of Buffalo and Salamanca. Headquarters. Cleveland, Ohio.

J. W. Eber, general manager, Toronto, Hamilton & Buffalo. Headquarters, Hamilton, Ont.

W. Franklin Eckert, superintendent, Wilmington & Columbia Division. Philadelphia & Reading. Headquarters, Reading, Pa.

C. I. Evans, trainmaster, Parsons District, Missouri, Kansas & Texas Ry. Headquarters. Parsons, Tex.

George H. Emerson, general manager, Great Northern.

D. J. Evans, assistant superintendent, Toledo Division, Lake Shore & Michigan Southern. Headquarters, Toledo, Ohio.

John E. Epler, assistant general manager, Chicago & Eastern Illinois. Headquarters, Chicago.

Charles H. Ewing, general superintendent, Philadelphia & Reading. Headquarters, Reading, Pa.

Frederick McQ. Falck, superintendent, Atlantic City R. R. Headquarters, Camden, N. J.

W. H. Farrell, superintendent freight service, Grand Trunk Railway. Headquarters. Montreal, Que.

L. J. Ferritor, superintendent, Scranton Division, Delaware, Lackawanna & Western. Headquarters, Scranton, Pa.

I. W. Geer, superintendent, C. & P. Division, Pennsylvania lines.

U. E. Gillen, general superintendent, Grand Trunk Railway. Headquarters, Chicago.

J. A. Gordon, general superintendent, Pere Marquette. Headquarters, Detroit, Mich.

H. L. Graham, trainmaster, Western Division, Louisiana Ry. & Navigation Co. Headquarters, Shreveport, La.

E. E. Gray, assistant superintendent First Division, Denver & Rio Grande. Headquarters, Pueblo, Colo.

J. F. Green, division roadmaster, International & Great Northern.

D. J. Hackett, superintendent, Canadian Division, Michigan Central R. R. Headquarters. St. Thomas, Ont.

Grant Hall, general manager, western lines, Canadian Pacific. Headquarters, Winnipeg, Man.

Herman Hall, general superintendent, Louisiana Southern. Headquarters, New Orleans, La.

P. C. Hart, general superintendent, Puget Sound Lines of the Chicago, Milwaukee & St. Paul. Headquarters, Seattle, Wash.

Frank E. Hatch, trainmaster, Illinois Central. Headquarters, Centralia, Ill.

Thomas J. Hayes, trainmaster, entire Eastern Division, Big Four.

W. F. Hayes, superintendent of time service, Missouri, Kansas & Texas System. Headquarters, Dallas, Tex.

L. M. Jones, assistant to general manager, Norfolk Southern. Headquarters, Norfolk, Va.

L. W. Karnes, trainmaster of the Wabash, Decatur, Ill.

C. J. Kavanaugh, trainmaster, Eastern Division, Chicago Great Western. Headquarters, Chicago.

E. F. Kearney, general superintendent of transportation, Missouri Pacific and the St. Louis.

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Iron Mountain & Southern. Headquarters, St. Louis, Mo.

M. J. Kennedy, general manager, Kansas City, Mexico & Orient.

C. H. Ketcham, superintendent, Stockton Division, Southern Pacific.

F. Kinsey, terminal superintendent, Chicago Great Western. Headquarters, Oelwein, Ia.

William J. Kleck, assistant superintendent of transportation. Texas & Pacific. Headquarters, Dallas, Tex.

M. J. Knelly, general manager, Kansas City, Mexico & Orient.

J. W. Knightlinger, assistant superintendent, Louisiana Western and Morgan's Louisiana & Texas R. R. & Steamship Company.

Frank Johnston Kron, superintendent of Logansport Division, Pennsylvania Lines West of Pittsburgh. Headquarters, Logansport, Ind.

G. M. Lindsay, inspector of merchandise handling, Chicago Great Western. Headquarters at Chicago.

R. J. Lockett, superintendent, Fort Worth Belt Railway. Headquarters, Ft. Wayne, Texas.

I. H. Luke, superintendent, Second Division, Denver & Rio Grande. Headquarters, Salida, Colo.

J. J. McCullough, superintendent, Puget Sound Division, Northern Pacific. Headquarters, Tacoma and Seattle, Wash.

R. T. McGraw, superintendent, Fourth Division, Denver & Rio Grande. Headquarters, Alamosa, Colo.

Benjamin McKeen, general manager, Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Pa.

W. H. Molchior, superintendent, Rocky Mountain Division, Chicago, Milwaukee & Puget Sound. Headquarters, Three Forks, Mont.

H. W. McMaster, general manager, Wheeling & Lake Erie. Headquarters, Cleveland, Ohio.

A. D. MacTier, general manager, eastern lines, Canadian Pacific. Headquarters, Montreal.

A. E. Macdonald, general claim agent, Canadian Northern and the Duluth, Winnipeg & Pacific.

A. P. Maguire, trainmaster, Eastern Division, Louisiana Ry. & Navigation Co. Headquarters, Baton Rouge, La.

C. L. Mahoney, chief clerk to superintendent, Michigan Division, Big Four. Headquarters, Wabash, Ind.

R. B. Mann, assistant trainmaster, Cincinnati, Hamilton & Dayton. Headquarters, Lima, Ohio.

A. R. Merrick, general superintendent, Western Maryland. Headquarters, Baltimore, Md.

A. B. Newell, general manager for receivers, Tennessee Central. Headquarters, Nashville, Tenn.

Frank E. Nicoles, superintendent Eastern Division, Chicago, St. Paul, Minneapolis & Omaha Ry. Headquarters, Eau Claire, Wis.

William O'Herin, assistant to general manager, Missouri, Kansas & Texas Railway System, the Beaumont & Great Northern, the Texas Central and the Wichita Falls Lines. Headquarters. Dallas, Tex.

W. H. O'Keefe, superintendent of terminals, Michigan Central. Headquarters, Detroit, Mich.

Robert S. Parsons, assistant general manager, lines east of Buffalo, Erie Railroad.

J. P. Quigley, superintendent of transportation, Western Pacific. Headquarters, San Francisco.

C. A. Plumly, assistant superintendent of telegraph, B. & O. S. W. and C. H. & D. Headquarters, Cincinnati.

A. P. Prendergast, superintendent of motive power, Baltimore & Ohio. Headquarters, Baltimore.

Fred Price, superintendent passenger service, Grand Trunk Railway. Headquarters, Montreal, Que.

A. B. Ramsdell, superintendent, Kansas Division, Rock Island. Headquarters at Herington, Kan.

S. U. Rhymer, general signal inspector, Chicago & Alton R. R. Headquarters, Bloomington, Ill.

Franklin G. Robbins, superintendent, Buffalo Division and branches, Erie Railroad.

M. W. Rotchford, manager, Illinois & Iowa Demurrage Bureau. Headquarters, Peoria, Ill.

S. V. Rowland, inspector of transportation, Chicago Great Western. Headquarters, Chicago.

J. H. Tinker, acting superintendent of motive power, Chicago & Eastern Illinois R. R. Headquarters, Danville, Ill.

H. M. Torrence, assistant superintendent, Houston & Texas Central. Headquarters, Ennis, Texas.

Perry S. Sampson, superintendent, St. Louis Division, Chicago & Eastern Illinois. Headquarters, St. Louis, Mo.

A. M. Schoyer, general manager, Vandalia. Headquarters, St. Louis, Mo.

J. E. Scott, chief despatcher, Cleburne Division, Gulf, Colorado & Santa Fe. Headquarters. Galveston, Texas.

Arthur B. Shafer, acting superintendent, New York, Susquehanna & Western and the Wilkes Barre & Eastern. Headquarters, Jersey City, N. J.

H. Shearer, assistant to general manager, Michigan Central. Headquarters, Detroit, Mich.

H. W. Sheridan, general superintendent, Louisiana Western Railroad and Morgan's Louisiana & Texas Railroad & Steamship Company, the Louisiana Lines of the Southern Pacific. Headquarters, New Orleans, La.

E. C. Sicardi, superintendent of car service, Union Tank Line Company. Headquarters, New York.

A. B. Smith, manager of telegraphs, Grand Trunk System. Headquarters, Montreal.

H. S. Smith, trainmaster, Baltimore & Ohio Southwestern. Headquarters, Seymour, Ind.

N. L. Smitham, superintendent motive power, Katy Lines in Texas, Texas Central. Headquarters, Denison, Texas.

E. A. Sollitt, assistant superintendent, Detroit Division, Wabash Railroad. Headquarters. Detroit, Mich.

A. J. Stone, general manager, Erie lines. Headquarters, New York.

W. H. Sullivan, trainmaster, Toledo Division, Lake Shore & Michigan Southern. Headquarters. Toledo, Ohio.

Wm. J. Sullivan, assistant superintendent, Southeastern Division, St. Louis & San Francisco R. R. Headquarters, Birmingham, Ala.

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T. A. Sweeney, superintendent Eastern Division, Chicago Great Western. Headquarters, Chicago, Ill.

W. E. Symons, superintendent of motive power, San Antonio & Aransas Pass. Headquarters, San Antonio, Texas.

J. H. Walsh, assistant superintendent, Southern Pacific. Headquarters, San Antonio, Texas.

J. H. Walsh, assistant division superintendent, Galveston, Harrisburg & San Antonio. Headquarters, San Antonio, Tex.

P. G. Walton, assistant superintendent, St. Louis, Brownsville & Mexico. Headquarters, Kingsville, Texas.

A. E. Warren, assistant to general manager, Canadian Northern Ry. Headquarters, Winnipeg, Man.

O. T. Waring, superintendent, Atlantic Coast line. Headquarters, Florence, S. C.

E. T. Whiter, general superintendent, Northwest System. Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Pa.

W. A. Whitney, superintendent, Sacramento Division, Southern Pacific. Headquarters, Sacramento, Cal.

H. E. Whittenberger, general superintendent. Ontario lines, Grand Trunk. Headquarters, Toronto.

A. Wilcox, general superintendent, Central Division, Canadian Northern Ry. Headquarters, Winnipeg, Man.

W. B. Wood, superintendent Eastern Division, Pennsylvania Lines.

E. M. Wrenne, assistant superintendent, Nashville, Chattanooga & St. Louis.

M. T. Wright, superintendent, Middle Division, Michigan Central. Headquarters, Jackson, Mich.

Traffic.

J. W. Allison, assistant general freight agent, Baltimore & Ohio Southwestern. Headquarters, Cincinnati, Ohio.

H. W. Askew, commercial agent, N. O. M. & C. Headquarters, New Orleans.

Warren Baker, general agent, Frisco. Headquarters, Cape Girardeau, Mo.

B. S. Barnes, foreign freight agent, Erie Railroad. Headquarters, New York.

Edward E. Barry, traveling passenger agent, Southern Railway. Headquarters, Atlanta, Ga.

Harry J. Bills, traveling passenger agent, Lehigh Valley. Headquarters, Kansas City, Mo.

W. H. Bissland, general baggage agent, Missouri Pacific and St. Louis, Iron Mountain & Southern. Headquarters, St. Louis.

Elbert Blair, general freight and passenger agent, Texas Central. Headquarters, Waco, Texas.

E. B. Boyd, assistant general director of traffic, Missouri Pacific and St. Louis, Iron Mountain & Southern. Headquarters, Chicago, Ill.

H. H. Butler, assistant general passenger agent, Missouri Pacific. Headquarters, St. Louis, Mo.

M. K. Butler, traveling freight and passenger agent. Georgia & Florida. Headquarters, Moultrie, Ga.

W. B. Craig, general agent, St. Louis and San Francisco Railroad. Headquarters at Tulsa, Okla.

R. M. Calkins, traffic manager, Puget Sound Lines, Chicago, Milwaukee & St. Louis Railway. Headquarters, Seattle, Wash.

C. R. Calvert, traveling freight agent, Illinois Central. Headquarters, Memphis, Tenn.

I. G. Carlisle, assistant general freight agent, Central of Georgia. Headquarters, Savannah, Ga.

E. E. Carter, general agent, St. Louis and San Francisco Railroad. Headquarters, Wichita, Kansas.

Wm. R. Chapman, contracting freight agent, Soo Line. Headquarters, Chicago.

Truman H. Clark, commercial agent, Chicago, St. Paul, Minneapolis & Omaha. Headquarters, Minneapolis, Minn.

George F. Clough, commercial agent, Lake Shore & Michigan Southern. Headquarters, Cleveland, Ohio.

F. Conway, city freight and passenger agent, Canadian Pacific. Headquarters, Kingston, Ontario.

M. J. Conley, general agent, St. Louis and San Francisco Railroad. Headquarters, Joplin, Mo.

O. M. Conley, general agent, freight department, Frisco Lines. Headquarters, Chicago, Ill.

T. J. Cumming, commercial agent, Georgia Southern & Florida. Headquarters, Valdosta, Ga.

C. H. Easum, traveling freight agent, Illinois Central. Headquarters, Brookhaven, Miss.

Alva E. Elston, general agent, Erie Railroad. Headquarters, Chicago.

F. S. Fisher, commercial agent, Missouri, Kansas & Texas. Headquarters, Denison, Texas.

P. D. Freer, division freight agent, Cincinnati, Hamilton & Dayton Railway Company. Headquarters, Dayton, Ohio.

Archibald Fries, general freight agent, Baltimore & Ohio Railroad. Headquarters, Pittsburgh, Pa.

S. P. Haas, general agent, St. Louis and San Francisco Railroad. Headquarters, Ft. Smith, Ark.

Edward Hart, Jr., western general freight agent, Baltimore & Ohio Southwestern Railroad. Headquarters, St. Louis, Mo.

W. Lloyd Hayden, ticket agent and chief clerk city ticket office, Rock Island. Headquarters, Cincinnati.

C. M. Haines, traveling immigration agent, Gould Lines. Headquarters, Ft. Worth.

Charles H. Head, city passenger and ticket agent, Baltimore & Ohio. Headquarters, Columbus, Ohio.

C. E. Hildum, auditor of freight accounts, Erie and the New York, Susquehanna & Western. Headquarters, New York.

W. N. Hill, commercial agent, Southern. Headquarters, Dallas, Texas.

T. D. Hobart, general coal freight agent, Norfolk & Western. Headquarters, Roanoke, Va.

J. G. Hollenbeck, general passenger agent, Missouri Pacific-Iron Mountain System. Headquarters at St. Louis, Mo.

E. W. Huben, auditor and general freight and passenger agent, Orange & Northwestern. Headquarters, Orange, Tex.

W. A. Huckstep, soliciting freight agent, Georgia Southern and Florida. Headquarters, St. Louis.

J. S. Houston, assistant general freight agent

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in charge of all outside agencies, Texas & Pacific. Headquarters, St. Louis, Mo.

G. H. Hunt, freight claim agent, Chicago Great Western. Headquarters, Chicago.

J. H. Howard, freight claim agent, Chicago & Alton. Headquarters, Chicago.

T. B. Koons, vice-president and freight traffic manager, Central of New Jersey. Headquarters, New York.

George A. Lee, assistant general passenger agent, Chicago, St. Paul, Minneapolis & Omaha. Headquarters, Minneapolis, Minn.

O. S. Lewis, division freight agent, Baltimore & Ohio Southwestern R. R. Headquarters, Cincinnati, Ohio.

H. R. Lewis, general freight agent, Baltimore & Ohio. Headquarters, Baltimore.

B. J. Libbe, general agent of freight department, Chicago & Alton. Headquarters, Chicago.

L. H. McArthur, city passenger agent Baltimore & Ohio Southwestern at Kansas City, Mo.

I. H. McCandless, freight solicitor, Pennsylvania Lines. Headquarters, Philadelphia.

T. J .McGeoy, general western freight agent, Delaware, Lackawanna & Western. Headquarters, Chicago, Ill.

R. J. McKay, first assistant passenger agent. Chicago & Alton R. R. Headquarters, 605 Carleton Bldg., St. Louis, Mo.

W. C. McLaughlin, freight tariff agent, Baltimore & Ohio Southwestern. Headquarters, Cincinnati, Ohio.

John D. Mahon, general agent, Chicago, St. Paul, Minneapolis & Omaha. Headquarters, Superior, Wis.

Charles T. Mandel, assistant general passenger agent, Carolina, Clinchfield & Ohio. Headquarters, Johnson City, Tenn.

M. C. Markham, assistant general director of traffic, Missouri Pacific and St. Louis, Iron Mountain & Southern. Headquarters, St. Louis, Mo.

H. J. Mead, commercial agent, Birmingham and Atlantic. Headquarters, Birmingham, Ala.

F. A. Miller, passenger traffic manager, Chicago, Milwaukee & St. Paul Ry. Headquarters, Chicago, Ill.

R. C. Mills, general agent, St. Louis and San Francisco Railroad. Headquarters, Oklahoma City, Okla.

W. C. Mueller, general agent of the passenger department, Chicago & Alton. Headquarters, St. Louis, Mo.

T. D. Mullaly, freight soliciting agent, Southern Railway. Headquarters, Tampa. Fla.

F. N. North, traveling freight agent, Wabash Railroad. Headquarters, Pittsburgh, Pa.

W. H. Parnell, district passenger agent Southern Railway. Headquarters, Houston, Texas.

J. H. Patterson, freight claim agent, Mobile & Ohio and Southern Railway in Mississippi. Headquarters, Mobile. Ala.

Clarence A. Pearson, office of city ticket agent, Toledo & Ohio. Headquarters, Findlay, Ohio.

E. D. Perkins, general freight and passenger agent, Bartlett Western. Headquarters, Bartlett, Texas.

H. E. Pierpont, freight traffic manager, Chicago, Milwaukee & St. Paul.

A. K. Ragsdale, general baggage agent, San Antonio & Aransas Pass. Headquarters, San Antonio, Texas.

R. Roberts, agent, L. R. & N. Co. Headquarters, Baton Rouge, La.

J. D. Ruden, traveling passenger agent, Southern Railway. Headquarters, Norfolk, Va.

F. E. Schroder, assistant general passenger agent, Iron Mountain System. Headquarters, Little Rock, Ark.

Charles Scott, general freight and passenger agent, Lexington & Eastern Ry. Heaquarters, Lexington, Ky.

E. A. Senneff, agent. Erie Despatch. Headquarters, Spokane, Wash.

W. D. Skinner, traffic manager, Spokane, Portland & Seattle Ry., the Oregon Trunk, the Oregon Electric and the United Railways. Headquarters, Portland, Oregon.

Thomas G. Smiley, freight traffic manager, Western Maryland. Headquarters, Baltimore, Md.

Max P. Smith, commercial agent, Lehigh Valley Railroad. Headquarters, Minneapolis, Minn.

G. F. Snow, general agent of freight and passenger departments, Bangor & Aroostook. Headquarters, Presque Isle, Maine.

U. G. Soule, commercial agent, Southern Railway. Headquarters, Denver, Colo.

J. Stapleton, traveling freight agent, Chicago, Peoria & St. Louis.

W. R. Stephenson, agent, Lehigh Valley Railroad. Headquarters, Brokerage Bldg., St. Paul, Minn.

Harry C. Stevenson, traveling freight and passenger agent, Baltimore & Ohio Southwestern. Headquarters, Denver, Colo.

W. H. Tayloe, traffic manager, Chesapeake Steamship Company. Headquarters, Baltimore, Md.

W. E. VanDreser, northwestern agent, Traders' Despatch. Headquarters, Minneapolis.

Samuel B. Wade, commercial agent, freight department, Chicago, Peoria & St. Louis. Headquarters, Little Rock, Ark.

Henry Goban . Waring, assistant general freight agent, Seaboard Air Line. Headquarters, Norfolk, Va.

N. R. Williams, general agent of freight department, Chicago, Peoria & St. Louis. Headquarters, Minneapolis, Minn.

Harry Zender, traffic agent, Buffalo & Lake Erie Traction Co. Headquarters, Fredonia, N. Y.

Industrial.

Frank Anderson, director of development, Frisco Lines. Headquarters in St. Louis, Mo.

Howard L. Galleher, industrial agent, Baltimore & Ohio R. R. Headquarters, Pittsburgh.

Harry O. Hartzell, assistant general industrial agent. Baltimore & Ohio R. R. Headquarters, Baltimore.

J. E. Springer, industrial agent, Frisco Lines. Headquarters, Houston, Texas.

Purchasing.

J. R. Mueller, purchasing agent, Hocking Valley Railway. Headquarters, Columbus, Ohio.

W. G. Phelps, assistant purchasing agent, Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Pa.

L. B. Wood, general storekeeper, Sunset Central Lines of Southern Pacific. Headquarters, Houston, Texas.

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Miscellaneous.

Richard Lincoln O'Donnell, member Pittsburgh Industrial Development Commission.

E. A. Foos, fuel agent, Baltimore & Ohio. Headquarters, Baltimore.

F. R. McMillin, chief advertising clerk, Southern Railway. Headquarters, Washington, D. C.

Earle B. Mayfield, junior member Railroad Commission of Texas.

S. S. Shambaugh, president, Transportation Club of Indianapolis.

E. Frank Thomas, traveling timekeeper, Baltimore & Ohio Railroad.

George W. Weedon, president, Passenger Traffic Club of Cincinnati.

D. E. Winsted, chief schedule folder clerk, Southern Railway. Headquarters, Washington, D. C.

Dr. A. L. Wright, president, Surgical Association, Northwestern. Headquarters, Carroll, Ia.

RESIGNATIONS.

Executive.

G. L. Bolssevain, director, International Railway Company.

Morris Cohn, Jr., director, International Railway Company.

Wilbur E. Crane, vice-president, Ft. Smith & Western R. R., headquarters, Ft. Smith, Ark.

F. V. S. Crosby, director, Southern Pacific Railroad of Mexico.

C. H. Dix, president, Marion & Southern R. R. & the Raleigh & Charleston R. R.

Julius Kruttschnitt, Boards Union Pacific, Oregon Short Lines and Oregon-Washington Railroad & Navigation Co.

R. L. Gerry, director, Southern Pacific Railroad of Mexico.

Robert W. Goelet, director, Union Pacific Railway.

Marvin Hughitt, director, Union Pacific Railway.

Otto H. Kahn, director, Union Pacific Railway.

Julius Kruttschnitt, vice-president, Union Pacific.

James M. Landis, chief clerk to vice-president Voorhees, Reading Railroad.

R. S. Lovett, director, Southern Pacific Railroad of Mexico.

Robert S. Lovett, director, Union Pacific Railway.

James McCrea, director, New Haven Railroad.

James McCrea, president, Pennsylvania Railroad.

James McCrea, director, Northern Central and Philadelphia, Baltimore & Washington.

Benjamin McKean, director, Wiggins Ferry Company.

Alex. Millar, director, Southern Pacific Railroad of Mexico.

James O. Moore, director, International Railway Company.

H. R. Payne, vice-president, Union Tank Line Company.

Charles A. Peabody, director, Union Pacific Railway.

Thomas Penney, president, International Railway Company.

George W. Perkins, chairman and director, Pere Marquette.

Samuel Rea, board of directors, Norfolk & Western Railway.

Samuel Rea, director, Baltimore & Ohio.

Nelson Robinson, director, International Railway Company.

George I. Seney, director, International Railway Company.

Mortimer L. Schiff, director, Union Pacific Railway.

W. R. Shelby, vice-president and treasurer, Grand Rapids & Indiana. Headquarters, Grand Rapids, Mich.

M. B. Smith, receiver, Denver, Laramie & Northwestern.

L. J. Spence, director, Union Pacific Railway.

W. V. S. Thorne, director, Southern Pacific Railroad of Mexico.

Frank A. Vanderlip, director, Union Pacific Railway.

Legal.

George W. Seevers, general counsel, Minneapolis & St. Louis.

Accounting.

Albert McElevey, assistant comptroller, Pennsylvania Lines West of Pittsburgh.

Financial.

Alexander Millar, secretary of the board, Southern Pacific Railroad of Mexico.

Traffic.

W. E. Coman, traffic manager, Spokane, Portland & Seattle, the Oregon Trunk, the Oregon Electric and the United Railways. Headquarters, Portland, Oregon.

G. H. Geagan, general freight and passenger agent, Tremont & Gulf. Headquarters, Winnfield, La.

D. W. Gray, general freight agent, Baltimore & Ohio.

J. B. Parker, assistant general freight agent. Headquarters, Savannah.

H. L. Redfield, general freight agent, Louisiana Lines, Texas & Pacific. Headquarters, New Orleans, La.

H. L. Redfield, first assistant general freight agent and chief tariff bureau, Texas & Pacific. Headquarters, Dallas, Texas.

T. G. Roehm, first assistant general passenger agent, Chicago & Alton R. R. Headquarters, St. Louis, Mo.

E. L. Sargent, general freight agent, Texas & Pacific Railway. Headquarters, Dallas, Texas.

W. L. Sargent, traveling agent, Southern Railway immigration bureau.

E. D. Stratton, commercial agent, Southern. Headquarters, Dallas, Texas.

W. H. Tayloe, commercial agent, Southern Railway. Headquarters, Denver, Colo.

N. S. Wiegle, freight solicitor, Empire Lines. Headquarters, Indianapolis.

Operation.

A. G. Abell, superintendent, Louisiana Railway & Navigation Co. Headquarters, Shreveport, La.

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John Cash, superintendent, Evansville & Southern Indiana Traction Company.

William Cotter, general manager, Pere Marquette. Headquarters, Detroit.

W. H. DeFrance, general manager, Louisiana Southern.

Edward Dickinson, general manager, Kansas City, Mexico & Orient.

L. J. Ferritor, superintendent, Alton.

C. M. Freeman, assistant superintendent, Houston & Texas Central. Headquarters, Ennis, Texas.

J. A. Gordon, superintendent Eastern Division, Chicago Great Western. Headquarters, Chicago.

W. M. Hobbs, general superintendent, Southern Pacific Lines in Louisiana. Headquarters, New Orleans, La.

J. E. Hood, superintendent, Rocky Mountain Division, Chicago, Milwaukee & Puget Sound. Headquarters, Three Forks, Mont.

Thomas L. Morse, superintendent, Direct Navigation Company. Headquarters, Houston, Texas.

Fred Mertsheimer, superintendent of motive power and car department, Kansas City, Mexico & Orient. Headquarters, Wichita, Kansas.

H. W. McMaster, general manager, Wabash-Pittsburgh Terminal. Headquarters, Pittsburgh.

O. J. Ogg, superintendent Second Division, Denver & Rio Grande. Headquarters, Salida.

Frank Page, superintendent, Raleigh, Charlotte & Southern. Headquarters, Dallas, Texas.

F. N. Reynolds, terminal superintendent, Chicago Great Western. Headquarters, Oelwein, Ia.

J. A. Shepherd, general manager, Western Maryland. Headquarters, Baltimore, Md.

H. W. Sheridan, superintendent, Sacramento Division, Southern Pacific. Headquarters, Sacramento, Cal.

H. C. Van Buskirk, superintendent motive power and car department, Colorado & Southern.

W. S. Woodward, superintendent, Ft. Worth Belt Railway.

Engineering and Mechanical.

James Ashworth, master mechanic, Louisville & Nashville R. R. Headquarters, Boyles, Ala.

Ralph Budd, chief engineer, Spokane, Portland & Seattle Ry., the Grand Trunk, and the Spokane & Inland Empire R. R. Headquarters, Portland, Oregon.

T. B. Conlyn, division engineer, Cincinnati, Hamilton & Dayton. Headquarters, Indianapolis, Ind.

Miscellaneous.

F. G. Athern, manager bureau of economics, Southern Pacific. Headquarters, San Francisco, Cal.

ORGANIZATION.

January Meeting of St. Louis Railway Club.—The first meeting of the New Year of the St. Louis Railway Club was held on the evening of January 10th. President Finley, of the Southern Railway delivered an address on "Transportation and Business."

Car Efficiency Discussed before Chicago Traffic Club.—At a special monthly luncheon, given by the Traffic Club of Chicago, on the 8th of January, J. M. Daly, General Superintendent of Transportation, Illinois Central Railroad, gave an interesting talk on car efficiency. In the course of his remarks, Mr. Daly suggested some possible remedies for car shortage and congestion, principal among which were the pooling of all freight cars by the various lines, also a suggestion for co-operation of shippers at time of heavy tonnage movement, by working their forces longer hours for the loading and unloading of shipments.

Chicago's Freight Association Appeals to Shippers.—Appeal to shippers to use more care in packing freight has been issued by the Local Freight Agents' Association of Chicago. It is pointed out by the association that there have been an unusually large number of infractions of what might be considered ordinary precautions to insure the arrival of freight at destinations in proper condition. Officials of the organization recently made an investigation of the proper packing and marking of freight with a view of submitting suggestions for improvement.

Annual Convention of Commission Merchants.—At the last annual convention of the National League of Commission Merchants of the United States held in Cincinnati, on January 10th, resolutions were adopted to the effect that all members of the National League of Commission Merchants, and the trade in general, support all claims with affidavits as to the essential facts, supporting such claims, thereby insuring the carriers a square deal in the filing of claims by forcing the claimant to state facts or perjure himself. This, it is stated, will eliminate the necessity of the carriers' exhaustive investigation which not only delays settlement but frequently causes the carrier more expense than the amount of claim.

New Lumber Organization.—The Southern Hardwood Traffic Bureau, with headquarters at Memphis, Tenn., has applied for a State charter in order to effect an organization for the purpose of contesting advances proposed by the railroads operating through the Memphis gateway and other principal traffic centers in the Southern Hardwood territory. The new organization, in effect, succeeds the Lumberman's Traffic Bureau at Memphis.

Annual Meeting of Civic Federation.—At the thirtieth annual meeting of the National Civic Federation held in New York on January 28th and 29th, the following questions were considered:

How far is it possible by law to prevent industrial disputes? Is the recommendation for Federal and State mediation boards with compulsory powers, made by the arbitrators in the recent controversy between the engineers and the eastern railroads, practicable or desirable?

During the past two years, the Federation has devoted much time and energy to the matter of

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uniformity in State legislation, and it is planning an active campaign along a number of important lines through its State committees in the thirty-eight States where the legislatures meet this winter. There has been a great demand for the Federation's bills from members of the various legislatures having in charge the subjects which the Federation has been considering. It is believed that the material furnished them, having been drafted by experts, will be of substantial value.

The subjects upon which the Federation will propose legislation are:

"Workmen's Compensation,"
"Accident Prevention,"
"Pensions for Federal, State and Municipal Employes,"
"Reform in Legal Procedure,"
"Regulation of Public Utilities,"
"Mediation in Industrial Disputes."
"Regulation of Industrial Corporations."
"Regulation of the Manufacture and Sale of Drugs and Food Products," and
"The Commercial Measures of the Commissioners on Uniform State Laws."

A discussion of the proceedings of the Convention will appear in the March number of the "Railway World."

Southern Pacific Safety Committee.—The Safety Committees on the Southern Pacific were organized last June and since that time every accident of any description has been investigated by the committees and a remedy suggested to prevent a repetition.

Each of the ten divisions of the Southern Pacific has a safety committee that meets once a month to discuss the accidents of the past thirty days. A majority of these accidents are minor, such as smashed fingers and bruised limbs. "Safety First" is the watchword and the particular object of the meetings is to discuss methods of preventing such accidents.

Keeping the slogan "Safety First" uppermost in every employe's mind is a big part of the work of these committees. In the seven months that the safety committees have been in existence on the Southern Pacific hundreds of remedies for accidents have been proposed and accepted. Railings have been placed around machinery parts where there had been danger of the clothing of a workman being caught, and the different shops of the company are now equipped with safety devices and such accidents are rare occurrences.

Monthly Meeting of New York Traffic Club.—At the last monthly meeting of the New York Traffic Club resolutions were adopted favoring the appointment of a new committee to be known as the "Public Affairs Committee," with the following duties:

"This committee shall be watchful of the trend of public opinion, legislation, etc., affecting the interests of carriers and shippers, and which may in any manner affect the maintenance of the commercial and manufacturing supremacy of New York and such other related questions as the committee may deem proper or advisable to place before the club for formal action."

The following members were appointed to the new committee:

Chairman, B. D. Caldwell, president of Wells, Fargo & Co.; D. W. Cooke, general traffic manager Erie Railroad; George T. Smith, president First National Bank of Jersey City, N. J.; C. S. Keene, traffic manager American Tobacco Company; E. G. Warfield, vice-president and general manager Seaboard & Gulf Steamship Company, and Judge C. F. Moore.

Railway Business Association Elects Officers.—The Railway Business Association, at its annual meeting, elected the following officers for 1913:

President George A. Post, New York; vice-presidents, A. M. Kittredre, Dayton, Ohio; W. E. Clow, Chicago; C. W. Simmons, St. Louis; B. P. Bush, Columbus, O.; Alba B. Johnson, Columbus, Ohio; H. G. Prout, Pittsburgh; W. G. Pearce, New York; treasurer, Charles A. Moore, New York; and assistant treasurer, M. S. Clayton, New York.

Announcement of the personnels of the appointive members of the general executive committee will be made later.

In its annual report, the general executive committee makes the statement that the association begins its fifth year in an atmosphere notable for apprehension, less the railways may prove unable to provide adequate facilities. The report continues:

"We undertook a sort of census of shippers to ascertain definitely to what extent the fundamental facts of the situation had become known to business men. The result is herewith made public in 4,000 signatures of shippers and receivers, located in almost every State, declaring for a policy which will permit the railways 'adequate revenue to meet existing obligations and to attract capital for necessary improvements and extensions.'

"The increase in Eastern engineers' wages, followed by petitions from other employes, is an additional reason for anxiety that railway credit be conserved.

"It is, the arbitrators declare, 'imperative that some other way be found to settle differences between railroads and their employes than by strikes,' and what has been described by the labor representative on the board as compulsory arbitration is recommended. It is equally imperative to prevent stoppage due to insufficient facilities. But when it comes to applying the remedy the public faces a different situation. It might be possible under our form of government to prevent by law a number of employes from banding together to stop trains. Under private ownership the government cannot by law compel a railroad company to enlarge a terminal or buy locomotives and cars if it has not got the money, and it cannot compel investors to arbitrate whether they shall furnish the money.

"Statistics for the fiscal year ended June 30, 1912, compared with 1910—both bumper years—show a decrease of net operating income (after taxes are paid) of $462 per mile of line, or 12 per cent.

"That is, while enjoying larger receipts these roads had left per mile of road 12 per cent. less in 1912 than in 1910 available for interest on debt, for improvements out of earnings, and for dividends and surplus upon which to base credit in selling securities.

"The commission has said that it will act for the strengthening of railway credit if expenses should so increase as to convince them that the time has come. These shippers' signatures may

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well suggest to the commission that the hour has struck for formulating such a policy and giving it public enunciation."

Report of American Railway Association on Car Location.—In accordance with a request of the Interstate Commerce Commission, the American Railway Association has completed a report showing the location of freight car equipment, whether on or off the home lines; also the total number of cars owned, home cars on home roads, home cars on foreign roads, and the surplus and shortage of freight equipment in relation to the demands of traffic. The report was compiled from data furnished by three hundred and eleven railroads and gives the information desired as of November 30, 1912.

The report shows that by all roads reporting there is a total of 2,251,541 freight cars owned, of which only 1,071,014 or 47.57 per cent. were home cars on home roads. Home cars on foreign roads were 1,176,073, while foreign cars on home roads were 1,210,740. The total number of cars on lines reported was 2,281,754, an excess over those owned of 84,068 cars. At the same time there was a surplus of freight equipment reported of 26,135 cars, and shortage of 62,536, a net shortage of 36,401. As to cars in shops, there were 97,240 home cars in home shops, or 4.53 per cent., and 32,436 foreign cars in home shops, or 1.51 per cent., making a total of 129,676 cars in shops, or 6.04 per cent.

Annual Dinner of Central Railway Club.—At the annual dinner of the Central Railway Club held in Buffalo on the evening of January 10th, addresses were delivered by the following men: Riley Williams, vice-president of the Schuylkill & Canastoga Valley Railroad; George M. Basford, assistant to the president, American Locomotive Co.; A. J. Grymes, manager marine department of the Erie R. R.; William McClellan, electrical engineer of the Public Service Commission, Second District, and chairman of the Electrification Committee of the New York Railroad Club; Hon. Devoe P. Hudson, Buffalo, N. Y.

At the annual meeting preceding the dinner, Arthur Hale delivered an interesting talk on "Freight Car Tactics." Mr. Hale's address was listened to with close attention, and is referred to more fully in another section of this issue.

The annual election was held by letter, and it is understood that most of the officers of the club were re-elected.

LEGISLATION.

National.—Legislative developments at the National Capitol during January, contained little of importance to the railways. The Pujo Committee continued its investigation during most of the month, and it is understood that it will shortly make recommendations to Congress in an effort to curb further concentration of financial power as indicated by the statement of the various witnesses. The "Shipping Trust" investigation has brought out information of considerable interest, and has apparently established the fact that the control of trans-Atlantic shipping is of a decidedly monopolistic character. How Congress, however, will be able to regulate commerce and conditions over which it has largely no control, is a problem, the solution of which is awaited with interest. This investigation is reported and discussed in greater detail in another section of this issue.

The opinion in Washington seems to be, that a physical valuation bill will be placed on the statute books at the present session of Congress. The sub-committee of the Senate Committee on interstate commerce, of which Senator LaFollette is chairman, has begun to hold hearings on this question. It is reported that certain interests which opposed the bill in the House are now willing to have a physical valuation placed upon the railroads for the reason that such valuation can be made a basis for rate making and would prove an effective argument in favor of rate advances for which the carriers have been strongly contending during the past two years.

Among the resolutions presented during the month which affect the railroads, was one by Congressman Linthicum, of Baltimore, which directs the House of Representatives to institute a sweeping investigation of the wrecks and accidents on American railroads and their causes, with a view of getting information for legislation which will place more safeguards around the traveling public. The resolution has been referred to the Committee on Rules. It directs an investigation not only on the causes of wrecks but as to the regulations for the selection of employes who handle the trains and the operating methods of railroads.

Regarding the New Haven situation, and the proposed investigation of railway conditions in New England, it has been officially announced that there will be no congressional investigation of this character which was to include the supposed traffic agreement between President Mellen, of the New Haven and President Chamberlin, of the Grand Trunk. In view of the Grand Jury proceedings in New York, the House Rules Committee has decided to drop the resolution presented by Representative O'Shaughnessy, of Rhode Island, which calls for such an investigation.

Among the developments in the Senate was a bill introduced by Senator Bristow, of Kansas, which is referred to at greater length in another section and which has for its object the creation of an industrial commission having much the same power over industrial concerns that the Interstate Commerce Commission exercises over the transportation service and the Controller of the Currency over the national banks. The bill combines the power and authority of these two governmental offices into one commission and gives it supervision over industrial enterprises that engage in interstate commerce.

In the House of Representatives, a bill has been introduced by Congressman Towner, of Iowa, requiring the railroads to carry packages of any weight above eleven pounds subject to rules and regulations by the Interstate Commerce Commission.

The House Committee on Commerce, held the following hearings during the month: January 24th, on the extension of pier heads in the Hudson River; January 28th, on classification of freight rates, and January 31st, on questions affecting transportation of baggage, mileage books, etc. On February 4th, this Committee

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is to consider bills affecting safety of travelers and employes; on February 7th, legislation pertaining to the long and short haul clause; on February 11th, transportation of farm products; on February 14th, rates of transportation and on February 28th, handling and marketing of cotton.

Canada.—The Quebec Parliament has granted remarkable subsidies to the projected James Bay Railway. The bill incorporating the North Railway Company as the company is known, was passed by the Quebec Parliament last year and it provided for a land grant to the company of 4,000 acres of land per mile for that portion of the road south and 5,000 acres per mile for that portion of the line north of the National Transcontinental. A more recent action of the Quebec Parliament has doubled this last subsidy but provides that the actual construction of the road be commenced within six months and that the line north of the National Transcontinental be completed within three years.

The company is also to become the absolute owner of the mines and minerals on one-fifth of the lands granted by way of subsidy, but the company is to pay 25 per cent. of the net proceeds of the operation of all such mines. The Quebec government also undertakes to grant to the railway such water powers in the territory traversed by the road as may be needed for development for the purpose of operating the road at a nominal rental of 50 cents per horse power a year. The opposition leader objected strongly to such generous grants being made on the last day of the session, but the bill was put through promptly.

Connecticut.—In his annual message to the General Assembly, Governor Baldwin, of Connecticut, recommends the legislature to urge Senators to keep faith with Great Britain on the Panama Canal treaty and to ratify the amendment for the popular election of Senators.

The governor refers at length to the Hague tribunal and the obligations of the Hay-Pauncefote treaty bearing upon the use of the Panama Canal. He says:

"We have solemnly agreed as a nation, that disputes as to the true construction of any treaty between us and Great Britain, which diplomacy cannot settle, shall be settled by arbitration, unless they affect the vital interests, the independence, or the honor of the two countries, or the interests of third parties. Diplomacy has thus far failed to settle the present dispute. To break our agreement, made to meet just such a condition of things, would, it seems to me, be a plain breach of public faith."

Missouri.—Reports from Missouri indicate that the Legislature of that State will attempt this winter to enact a law creating a Public Utilities Commission, and another providing for the compensation of injured workmen. While it is not known whether the railroads of Missouri will oppose the creation of a Public Utilities Commission, it is generally believed that they will not providing the measure which creates it, is of a conservative and well-digested character.

Massachusetts.—An order has been introduced into the State Legislature requiring the Railroad Commission to investigate contract between New Haven and the Pullman Company, providing for operation of Pullman parlor cars on the New Haven system with a view to determining whether it involves a loss to the New Haven.

Two bills have also been filed with the House, one of which has for its object the repeal of so much of the railroad act of last year as gives the Southern New England corporation authority to extend its line in Massachusetts, and the other requiring the Boston and Albany Railroad to abandon its storage yards adjacent to Boylston Street, Boston and to electrify its line between Boston and South Framingham. According to the bill the first change has to be completed within the coming year, while five years is allowed for the electrification.

New York.—A Workmen's Compensation Bill has been introduced in both Houses of the Legislature and represents the result of an expert study of the subject by the State Insurance Department.

The act was made elective in form in order to meet the objections raised by the Court of Appeals to the compulsory compensation act. Every employer and employe is brought presumptively within the operation of the act unless they have given notice to the Insurance Department of their intention to reject its provisions. Experience has shown that this method brings in a number of people who are in doubt and cannot reach a decision in the matter. Employers who decide to come within the act are required to either insure their liability for compensation with stock of mutual insurance companies or give satisfactory proof to the Insurance Department that they are financially solvent and will be able to meet their obligations.

The compensation schedule contemplates payments, in cases of total and permanent disability, during the entire lifetime of the employe. In fatal cases the schedule of compensation is graded according to the number of dependents. Non-resident aliens are also covered by the act. The act gives the Superintendent of Insurance the authority to establish a bureau within the department, consisting of a board of examiners for the purpose of passing upon and approving each settlement. In disputed claims the litigants have the alternative of either submitting their cases to courts of law or having them decided by the board of examiners in the Insurance Department. Employers who refuse to come under the act are deprived of the three common law defenses.

Another bill has been introduced in the Assembly with the object of inserting in the railroad law a new section providing that no demurrage charges shall be imposed by any railroad corporation for delay in unloading freight cars, except by uniform rules and regulations previously adopted, an abstract of which shall be printed on each bill or account for such charges presented to any assignee. When a car is desired and the time and place specified, it must be furnished at any station on the road, and a failure of the company to furnish the car or cars ordered for a period of time equal to or exceeding the time allowed by the rules of the company for unloading by a consignee before the accrual of demurrage charges, shall

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subject the company to damages in favor of the intended shipper equal to the demurrage charges, as fixed by the railroad company, during the time the furnishing of such car or cars is delayed beyond the time specified in the order therefor.

Rhode Island.—Recent abandonment of construction work on the Southern New England Railway of the Grand Trunk System in Rhode Island is responsible for the introduction in the General Assembly of that State of a bill providing a remedy for any property damage resulting from the road's action. A resolution was also presented asking Congress to enact a law to give the people an interest in the management of all interstate railroads. Senator Edwin C. Pierce, of Cranston, proposed both measures.

The Railway bill provides that when a railroad shall abandon work as in the recent instance of the Grand Trunk, the Superior Court shall, at the request of the Attorney-General, appoint receivers for the railroad corporation. Receivers so appointed may either complete the road or sell it to some other corporation formed for the purpose.

Texas.—It is reported that at the next session of the Texas Legislature, the Missouri, Kansas & Texas will ask for authority to lease the Texas Central, the Wichita Falls Route in the State, and the Beaumont & Great Northern, of which it already has acquired stock control.

Although the legality of the proposition is not questioned, because these are not competing for parallel lines, there is doubt as to what the attitude of Governor Colquitt will be in view of his stand on the proposed merging of the International & Great Northern with the Missouri Pacific.

LABOR.

The Firemen's Wage Controversy.—Interest in labor developments during January, centered around the wage controversy which is being carried on between Eastern roads and their firemen. Early in the month the firemen agreed with the railroad managers to ask Martin A. Knapp, Judge of the Commerce Court and Charles P. Neill, United States Commissioner of Labor to act as mediators under the Erdman Act. After an effort of several days, however, the announcement was made that the mediation conferences would be discontinued on account of the inability of the conflicting interests to get together.

The railway managers then offered to submit the questions involved to a Board of Arbitration, but this proposal was rejected by the firemen. The managers also offered a compromise which included increases in wages affecting nearly all roads and a proposal to submit to a committee the question of two firemen on certain types of locomotives, but this was also rejected by the firemen, and a strike vote for January 31st ordered.

In the meantime, the railroads have issued several statements calling the public's attention to the efforts which have been made to avoid serious difficulty and the refusal of the firemen to agree to either a compromise or arbitration. In one of these statements the railways clearly define their position by declaring that they are prepared to apply to the firemen the conclusions embodied in the award of the Board which recently arbitrated the differences between the locomotive engineers and the railroads. They have also signified their willingness to grant certain increases in wages or are prepared to arbitrate the present case independently by a board of five or seven men appointed by some such disinterested authorities as Chief Justice White, of the United States Supreme Court; Martin A. Knapp, presiding Judge of the United States Commerce Court, and Dr. C. P. Neill, United States Commissioner of Labor, as was done in the engineers' case. It is of interest to note in this connection that under the recent award in the engineers' arbitration case, the engineers received a total annual increase in pay of about $2,000,000 or approximately five per cent.

In a published statement, President Carter, of the firemen objects to the railroad's plan of an Arbitration Board on a plea that there was a great delay in settling the engineers' case and that it was over six months from the time arbitration was agreed on before the decision was rendered. The railroads point out, however, that this statement is misleading as the engineers' increase in wages was retroactive and applied to the whole period of the delay. Though the reward was not made public until November 26th, it was made effective as to May 1st, and the men received back pay amounting to about $1,000,000.

If the firemen decide to strike they will be supported by little public sympathy and subject themselves to the sharpest censure in view of the extraordinary efforts which the railroad officials have made for a peaceful settlement. Eastern managers are frank in their admission that there should be some adjustment in the pay of the firemen, who, as a body, are faithful and hard working. They believe, however, that the firemen are ill-advised both in demanding wages disproportionate to the other obligations of the companies and in declining to accept arbitration by a board sufficiently large to look at the controversy from all points of view and appointed by some disinterested body or committee of citizens.

In their public statement of January 31st, the day on which the strike vote was taken, the railroads called the public's particular attention to the following utterance contained in the award of the engineers' case:

"From the viewpoint of the public it is an intolerable situation when any group of men, whether employes or employers, whether large or small, have the power to decide that a great section of the country as populous as all of France shall undergo great loss of life, unspeakable suffering, and loss of property beyond the power of description, through the stoppage of a necessary public service. This, however, is the situation which confronts us as a nation."

United States Steel Wages Advance.—The United States Steel Corporation has made public its wage increase plan which provides for an increase of a million dollars per month or $12,000,000 a year.

The statement issued by Chairman Elbert H. Gary follows:

"In accordance with the recent announcement

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made by the chairman respecting an advance in wages, many of the subsidiary companies of the United States Steel Corporation have made up their schedules, which together aggregate an increase in wages of about $1,000,000 per month, commencing about February 1st. These benefits largely apply to the workmen receiving the lowest daily wages. Some of the mining companies are not included, for the reason that wages have been heretofore adjusted by those companies and are now above the average."

Mexican Railway Strike Settled.—The railway machinists' strike, which began December 20th, has been settled. The men are granted a ten per cent. increase in wages, but no reduction in the ten-hour day. The railway management has refused to dismiss the American master mechanic, Schneider, against whom the men had a grievance.

TRAFFIC.

Traffic Developments During January.—Traffic developments continued heavy during January, and while the car situation showed, in the main, satisfactory conditions, the railroads both East and West had all the freight which they could handle. Complete figures are not available at the present time, but indications are that January will make even a better tonnage record than did December. Cold weather during the middle of the month in the Western States caused operating delays but lasted only for a few days. In the Northwest, the movement of merchandise and miscellaneous freight was on so large a scale as to hold back large amounts of grain which would otherwise have moved. The movement of coal was also heavy during the month and lumber shipments were greatly in excess of those for 1912. A heavy grain movement is expected for February.

One of the unfortunate developments of the month was the freezing weather in California, which began about January 6th and extended over a period of about three days, and which has caused a great loss in the citrus fruit section, estimated in some quarters as high as 50 per cent. This will, of course, greatly effect the volume of citrus fruit moved by the transcontinental lines during 1913 and for some years to come.

Reports from Chicago show the grain movement for 1912 to have been the greatest at that port for nine years. The railroads handled approximately 34,500,000 bushels more than in 1911 and 11 000,000 bushels more than in 1909 which heretofore held the record. Lake shipments of coal, both anthracite and bituminous, were also the largest on record, shipments of bituminous reaching 23,335,000 tons, an increase of over 1,500,000 tons as compared with 1911. Shipments of anthracite reached a total of 4,204,741 tons compared with 3,917,419 tons in 1911. The Lake movement of bituminous coal has increased more than 100 per cent. in the past ten years.

The railroads also report an exceptionally heavy travel to various winter resorts, and within recent weeks those catering to the tourists bound for Florida points and Panama have been attaching extra coaches to through trains almost nightly and it is reported that additional equipment is constantly needed on trains going to California and Gulf of Mexico resorts. The situation is unusual in view of the mild northern winter.

Reports from the New York Barge Office show that during 1912, the total number of vessels arriving at that port numbered 9,519 representing practically every civilized nation of the world. Reports from the Pacific Coast states that the Tacoma and Seattle oriental warehouses are piled high with manufactured goods, cotton, wheat and flour, waiting shipment to the Orient. Regular lines are unable to handle all the freight offered.

One of the significant developments of our export trade during 1912 has been the rapid disappearance of meat and breadstuffs from such exports. They show for example, the exportation of but 33,000 cattle in the calendar year against 164,000 in 1911; 277,000 in 1908; 494,000 in 1906; and 599,000 in 1904. The exportation of meat also shows a marked falling off, being but 9,000,000 pounds for the year against 29,000,000 in 1911; 156,000,000 in 1908; 270,000,000 in 1906; and 354,000,000 in 1901. The fresh beef exports of 1912 were less than 3 per cent. of those for 1901. The value of breadstuff exports for 1912 was approximately $277,000,000 as against $965,000,000 in 1901.

The latest figures of commerce between the Atlantic and Pacific Coasts of the United States, via the Isthmuses of Panama and Tehauntepec, indicate a rapid growth in the traffic between the Eastern and Western Coasts of this country. The principal articles in the Western movement include iron and steel manufactures, cotton cloths, paper and manufactures of wool. The eastbound movement includes canned salmon, dried and preserved fruits, wines, wool and sugar.

The Parcels Post.—The Parcels Post continues to be a matter of general public interest. According to official returns six million packages were handled in this manner during the first seven days of the operation of the system. Postmaster General Hitchcock, goes so far as to suggest that the adoption of this system will eventually lead to the absorption of the express companies. These companies have undoubtedly received a hard blow, but that they will tamely submit to being eliminated from the field is another question, and steps have already been taken to vigorously compete with the Government's system.

The attitude of Wells Fargo & Co. is indicated in a letter sent to each employe of the company by President Caldwell. The letter says in part: "The new year has brought to the express company a competitor worthy of its mettle, the new parcel post. It becomes a competitor not only of the company, but of every man in the service, hence the newcomer as an important factor in small parcel transportation is neither to be belittled nor overestimated, but calls most for renewed efforts on the part of Wells Fargo men to maintain the company's standard of service as the basis of public favor and patronage."

Adams Express Company also defines its position in the following statement:

"The company appreciates that the Parcel Post has been established in response to a widespread and persistent demand, and anticipates it has come to stay. The company's policy will

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be to devote its energies to rendering a service even more efficient and satisfactory than in the past, and all officers and employes are directed to exert every effort to that end. The company does not wish any of its employes to adopt a policy of fault-finding toward the Parcel Post, but expects them by their efficiency to demonstrate to its patrons the necessity for the express company's distinctive service."

Reports from Canada state that the postmaster-general of that country after having sent several officials of the department to the United States to observe the workings of the Parcel Post, has prepared a zone map for Canada, dividing the country into five zones and is about ready to promulgate an order establishing a Parcel Post system for Canada.

Harriman Lines to Dissolve Joint Agencies.—One of the results of the dissolution of the Union Pacific-Southern Pacific system will be the division of traffic departments heretofore maintained as one, as well as the various joint agencies in New York, Chicago, Cleveland, Cincinnati, Pittsburgh and New Orleans.

Britain's Trade Establishes New Records.—Statistics issued by the British Board of Trade show that the imports of the United Kingdom for the year were valued at considerably over $3.500,000,000, an increase of more than $300,000,000 as compared with 1911. Exports were of a value of nearly $2,500,000,000 an increase of nearly $170.000,000. These results exceed all records.

New Record for Trans-Atlantic Travel.—The year 1912 established a new high record in trans-Atlantic travel, with 2,131,929 passengers going over the ocean highway. The total number sailing for Europe was 691,890. while arrivals in the United States were 1,440,038. The largest travel in any previous year was in 1910, with a total of 2,020,276 passengers. Of this number 596.004 sailed for Europe, and 1,424,272 landed in the United States. The 1911 total was 879,481 passengers, of whom 727,115 were emigrants and 1,152,366 immigrants.

Anthracite Shipments During 1912.—Anthracite shipments for December amounted to 5,944,502 tons, a decrease of 170,925 from December of 1911. The shipments for the year 1912 amounted to 63,610,578 tons. a decrease of 6,343,721 tons.

The production for 1912 is high, when it is considered that during six weeks the mines were closed on account of negotiations for a new contract with the miners.

STATE COMMISSIONS.

Canada.—The Board of Railway Commissioners devoted a full week during January to the western freight rate inquiry, and it is felt that a long step has been taken towards the completion of the most important rate case in the history of Canadian Railways. A vast amount of evidence was introduced by the complainants, among whom are numbered the Dominion Government and Provincial Government of Saskatchewan, Alberta and British Columbia, and practically all of the western boards of trade. The case is now over a year old.

California.—The State Railroad Commission has recently issued an order which covers the minimum clearances and character of construction for crossing of railroads, street railroads, telegraphs, telephone, signal, trolley and power lines, with each other, and with street and public highways, and also other overhead and side clearances of railroads, street railroads and wire lines. The commission states that this order shall be observed in California unless otherwise authorized or directed.

The commission has suspended indefinitely its general order No. 20, which relates to the matter of reporting revenue of intrastate steam railroads together with instructions for segregating operating expenses as between freight and passenger.

Indiana.—Inspectors for the State Railroad Commission have been ordered to investigate the work of installing block signals on the Cincinnati, Hamilton & Dayton Railroad between Glenwood and the Ohio line. This action follows the return by the Marion County Grand Jury of indictments charging involuntary manslaughter against sixteen officials and directors of the road and two trainmen, whom the Grand Jury contends were responsible for the collision between a freight and a passenger train in Irvington, a suburb, November 13th, when sixteen lives were lost.

Illinois.—On January 9th, the Railroad Commission held a hearing at which it considered the advance in charge for switching cars loaded with coal within what is known as the Chicago District, proposed by the Chicago, Milwaukee and St. Paul.

Among the complainants in the case are a number of Chicago coal firms. For a number of years the St. Paul company charged Eastern and Southern carriers a rate of $4 a car, with an excess toll of 10 cents a ton when the consignment exceeded 60,000 pounds per car, for coal car switching service.

Announcement was made last November that the company would change its switching charges and assess connecting carriers $6 a car for all cars loaded with coal which were handled by it within its Chicago switching territory. It was contended that the former rate was not sufficiently remunerative. Connecting lines operating in Eastern and Southern territory soon afterward filed tariffs setting forth that they would absorb the old switching rate and that the increase would be assessed against shippers. These tariffs were suspended by both the Interstate Commerce Commission and the Illinois Railroad Commission.

The Illinois Commission ruled in 1908 that $4.50 was a reasonable amount for switching a car loaded with coal within the Chicago District and was enjoined from enforcing this order by the Federal Court.

Louisiana.—The Railroad Commission has issued a ruling to the effect that all railroads operating in Louisiana, upon the receipt of any live stock for transportation, shall without delay transport the same on the first train passing in the direction of the destination, unless the said live stock can be delivered in shorter time than by a direct shipment. The said shipment shall not be delayed for any purpose unless for feed

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and water, and any railroad handling live stock over its lines shall feed, rest and water said live stock every twenty-eight hours, unless the shipper or his agent shall consent, in writing, to a release to thirty-six hours for feed and water.

Massachusetts.—In its annual report the railroad Commission states that: "It is the consensus of intelligent opinion at the present time that the New York, New Haven and Hartford Railroad system has already exceeded the proper limits of combination, and that unless it proceeds voluntarily to divest itself of some of the properties now held by it there is little doubt that some other effectual means will be found for accomplishing that result."

The Commission says that the road already has taken steps in this direction, in connection with the recent act of Congress relating to the Panama Canal, by arranging for the disposal of its steamship lines. It continues: "The management is apparently doing everything in its power to meet the demands for better service. Nevertheless, it seems imperative that some action be taken by the public authorities to assert a more effective control over the system and to secure from it the proper performance of the obligation it has voluntarily assumed of supplying the transportation requirements of the commonwealth."

It also states that:

"The present attitude of the public toward the New Haven interferes seriously with the efficient operation of the railroad, and is prejudicial to the company and to the public alike. What is most needed is some settlement that will lead to a constructive programme of railroad development through the co-operation of the New Haven with the public authorities. This settlement, however, must be made in a manner to meet the reasonable requirements of the public, and in conformity with the general policies of the Commonwealth.

"We are hopeful that the New Haven, insofar as it may be held responsible for present conditions, will be ready to make such concessions as may be reasonable and proper, in order to establish a more friendly relationship with the people. Any failure on the part of the company to adopt this course will force the public to give serious consideration, at whatever cost. to the adoption of a policy for the control of railroad transportation more radical than any heretofore in this Commonwealth."

Michigan.—The Grand Trunk has applied to the Railroad Commission for permission to double track portions of the outer belt line, known as the Detroit Terminal Railway, of which the Grand Trunk owns half, the Michigan Central one quarter, and the Lake Shore one quarter. The belt is operated jointly. Improvements will cost upward of $1,000,000.

The Commission has authorized the Chicago & Northwestern Railway Company to issue $10,000,000 of bonds for the purchase of new equipment. Application was made and a hearing given by the commission in the matter some time ago. The company is ordered to issue the bonds in ten yearly installments.

New Jersey.—According to a recent report of the Board of Public Utility Commissioners made to Governor Wilson the plan to compel the railroads of the State annually to eliminate a certain number of grade crossings might bankrupt several of the smaller companies. It is held by the board that the only satisfactory solution of the great problem will be through a recognition of the justice of distributing the cost between the carriers and the public, as represented by the State and municipalities. The board says that the State will be fortunate if by the end of two decades it sees the removal of all grade crossings.

The report of the commission is interesting in that it expresses the ideas entertained by Governor Wilson on the grade crossing question. At the last session of the legislature he vetoed a grade crossing bill because he feared it would do just what the commission suggests, bankrupt many of the smaller companies.

New York.—The annual report of the Public Service Commission second district, compares the results of the operation of steam railroads within the State for the fiscal years ending June 30, 1907 and June 30, 1912. This comparison shows that the total operating revenues have increased 14.60 per cent.; operating expenses have increased 14.20 per cent.; net revenues from operation have increased 15.60 per cent.; tons of revenue freight carried have increased 8.10 per cent; ton-miles of freight carried have increased 11.90 per cent.; passengers carried have increased 20.30 per cent.; the total revenue passenger-miles have increased 20.60 per cent.

Dividends declared in 1907 amounted to $75,178,807, and in 1912 to $96,956,844. The per cent. of increase in business in 1912 over that of 1911 was as follows: Operating revenues, 2.57; operating expenses, 2.45; net revenues from railroad operations, 2.84; tons of revenue freight carried, 2.99; ton-miles of freight carried, 2.84; passengers carried, 2.57; total revenue passenger-miles, 2.49; while dividends have increased from $79,768,181 to $96,956,844. The total operating revenues for 1907 were $566,744,845; for 1912 they were $649,522,995. The net revenues from railroad operations for 1907 were $168,382,602; for 1912 they were $194,632,783. The tons of revenue freight carried in 1907 were 414,302,051; in 1912. 447,974,051. The number of passengers carried in 1907 was 322,238,260; in 1912 there were 387,744,001 passengers carried.

In discussing car shortage conditions and their remedies the commission states that a thorough investigation was made of this matter during the past shipping season and it was found that a considerable number of shippers seem to think that they had the right to use cars as warehouses for any length of time they might see fit, with the result that the railroad was deprived of the use of cars which should be kept moving, and they find themselves unable to supply cars to other shippers by reason of the excessive time taken by the shipper in loading and billing out after the car is received by him. The commission points out that this conduct on the part of the shippers is not only a wrong to the railroad, but a greater wrong to other shippers, who are thereby deprived to some extent of cars which are needed in their business. The commission has frequently remonstrated with shippers upon this practice, which

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has never been defended nor even excused; but still the practice continues.

During the month of November, the commission found 122 cases where cars were held for periods of from 5 to 25 days idle upon sidetracks, and gives a list of these in full in its report. In its investigation, it has also discovered nine cases in September, 23 in October and 30 in December. The commission believes that this situation is one of sufficient importance to be made public, and that it may have the effect of wiping out in succeeding years the practices to which attention is called.

During the year 1912 the commission authorized the issuance of stocks to the amount of $30,602,055, and bonds to the amount of $96,817,446.19; a total of $127,419 505.19. The total capitalization authorized by the commission from July 1, 1907, to December 31, 1912, amounted to $693,889,009.05.

Recommendation is made to the Legislature for the "re-passage of the law vetoed by the Governor last year without stated and specific reasons therefor, empowering the commission to suspend increases in railroad rates pending investigation as to the reasonableness of such advances."

Recommendation is also made that the Public Service Commissions Law be amended, authorizing the commission to protect shippers in cases where the agent of a railroad quotes an erroneous rate and the shipment has moved on an under-rate quotation resulting in damage to the shipper and without collusion on his part.

The Commission has authorized the New York Central Railroad Company to issue $12,547,000 of trustees' certificates under its equipment trust of 1913. The proceeds are to be used for the purchase of various apparatus in this and other States.

The record of passenger train performances on the steam railroads in this State for November, shows that 62,184 trains were run during the month and of this number, 82 per cent. were on time. The average delay for each late train was 25.9 minutes, and the average delay for each train run was 4.6 minutes.

Ohio.—The Public Utilities Commission has given official sanction to a bond issue of the New York Central Railroad to the amount of $13,500,000 to be used for new equipment. The approval given concerns only Ohio. Permission has also been granted to the Ohio River and Northern Railroad to issue $1,000,000 in capital stock and $2,500,000 in bonds. The money thus to be derived is to be used in constructing the extension of the Erie Railroad System from Youngstown, Ohio to Pittsburgh. This appears to be a direct invasion of the territory of the Pennsylvania lines which thoroughly covers and controls all the territory between Youngstown and Pittsburgh. The new Ohio River & Northern road will connect at Lisbon with a branch of the Erie that at present extends to that place from the Erie's main line at Youngstown.

Pennsylvania.—The annual report of the State Railroad Commission recently submitted to the governor, recommends that the powers conferred upon it be so increased that it could make recommendations and give directions with respect to safety appliances and regulate the crossing at grade of railroads and trolley lines with roads.

The report refers to the multiplicity of telephone systems as a source of needless annoyance and expense and recommends legislation compelling the interchange of messages.

The commission furnishes statistics showing that in the five years of its existence 420 persons were killed on grade crossings within the State. Last year the total fatalities from all causes on steam railroads were 1,179 and non-fatal accidents 11,034. There was an increase in the killed of 65 and in the injured of 2,858.

On the street railways 177 people were killed and 4,052 injured, a decrease of 16 in the number killed, but an increase of 300 in the injured. The fatalities embraced 14 employes, 18 passengers. 26 trespassers and 119 others.

The fatalities embraced 452 employes, 28 passengers, 583 trespassers and 116 others. There were 101 grade crossing fatalities, 21 more than during 1911, while 257 persons were injured.

The commission recommends that railroads enclose their rights of way to exclude trespassers and also suggests that railroads should put out all forest or country fires occurring within 100 feet of their tracks. During the year the commission held 114 meetings and considered 201 complaints.

The commission has recommended that the freight rate on bituminous coal from the Clearfield region to Lancaster be reduced from $1.50 to $1.40 per ton. The commission holds that the present rates of $1.30 to Harrisburg, $1.50 to Lancaster and $1.60 to Philadelphia are inequitable and discriminatory against Lancaster, since the rate to the city involves a charge of 20 cents for 36 miles between Harrisburg and Lancaster, while the Philadelphia rate includes only 10 cents for the 69-mile continuation of the haul from Lancaster.

Texas.—The State Railroad Commission has blocked the plans of the Missouri Pacific to take over and consolidate the International & Great Northern with that system.

Chairman Allison Mayfield has publicly announced that if the pending merger plans are carried out the Railroad Commission would instruct the attorney-general to file suit to forfeit the charter of the International & Great Northern for alleged violation of the laws and constitution of the State.

The Railroad Commission has instructed the attorney-general to file suit against the Southern Pacific and the Santa Fe for penalties for violation of the order requiring the running of passenger trains on time. The Southern Pacific is to be sued for $30,000 and the Santa Fe for $250,000.

It is claimed by the Railroad Commission that the operating expenses of the International & Great Northern for the fiscal year ended June 30, 1912, were abnormally large. In order to ascertain the details of these expenditures an investigation of the books of that railroad will be made by the auditing department of the railroad commission. The report shows that the operating revenues of the road for the last fiscal year aggregated $10,358,773 and the operating expenses $7,548,774. It is planned by the Railroad Commission to make a careful study of the items that are charged to operating expenses.

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LEGAL.

Railroad's Right to a Hearing.

The Interstate Commerce Commission met with a decided defeat at the hands of the Supreme Court on January 20th, in its attempt to establish a right to make rates without substantial evidence being presented at a hearing to show an unresonableness of rates about to be replaced.

In discussing the Court's decision, the "New York Journal of Commerce" has the following, editorially; to say:

"It appears that the Interstate Commerce Commission had issued an order reducing certain class rates in the South without giving the railroad affected a chance to be heard in defense of the reasonableness of the rates it had established. The law empowers the Commission to require rates to be reduced if it finds them to be unreasonable after a 'hearing.' In this case at such hearing as was given only the complaining shippers were heard, or representatives of the localities affected. It seems to have been assumed that this was within the discretion of the Commission and that no court was entitled to review its exercise of such discretion.

"The Supreme Court holds that the Commission has no authority to prescribe rates based upon investigations of its own and upon its own judgment as to what they ought to be. They must be based upon evidence obtained at a hearing where the railroads have an opportunity of presenting their own side of the case. Whether substantial evidence has been given which supports the conclusion of the Commission is a question of law for the courts to review. The government had contended to the contrary in the suit, but the Supreme Court sustains the right of the railroad to be heard and to appeal to the courts if an opportunity is refused.

"In reply to the government's contention in the suit that as Congress required the Commission to obtain information to enable it to perform its duties, it was to be presumed when it issued an order that it had obtained such information to support its finding, Justice Lamar, handing down the opinion of the Court, says: 'Such a construction would nullify the right to a hearing, for manifestly there is no hearing when the party does not know what evidence is offered or considered, or is not given an opportunity to test, to explain or to repudiate it.' Information gathered by the Commission in its own way may be used as a basis for prosecutions for violation of the law and for 'many other purposes,' but it will not serve in 'cases where the parties are entitled to a hearing.' This seems reasonable. There would be little safety to rights in allowing the contrary, and even railroads have rights."

"Corners" Illegal.—As stated more fully in another section of this issue, the Supreme Court of the United States on January 6th, declared "corners" in commodities on the market illegal under the Sherman Anti-Trust Law, and held for trial in the New York Federal Courts, James A. Patten, a Chicago grain operator and his associates for alleged "corners" of the cotton market in 1910.

Minnesota Demurrage Law Illegal.—The Supreme Court of the United States has declared the Minnesota reciprocal demurrage law of 1907 to be invalid, in its decisions in the case of the Rock Island Railroad against the Hardwick Farmers' Elevator Co. The law prescribed a penalty on railroads of $1 a day for failure to supply freight cars to shippers.

The decision of the Minnesota Supreme Court upholding this law was reversed. Several States have similar laws.

Union Pacific's Stock Plan Denied.—The plan proposed by Union Pacific Railroad attorneys "for dissolving" the Union Pacific-Southern Pacific Railroad by allowing the Union Pacific stockholders to have the exclusive privilege of buying the Southern Pacific stock now owned by the Union Pacific Railroad corporation has been rejected by the Supreme Court of the United States.

Reargument of "Full Crew" Suit Ordered.—The Pennsylvania Supreme Court has ordered a reargument of the case of the Pennsylvania Railroad Co. vs. the State Railroad Commission, on the sole question of jurisdiction. This is the case to determine the constitutionality of the "Full Crew" act.

Vermont's Demurrage Law Declared Void.—The State Supreme Court of Vermont has declared the four-day railroad demurrage law illegal on the ground that it conflicts with the Interstate Commerce Law.

Injunction Sought in Tap Line Case.—Tap line railroads have filed a petition with the Commerce Court asking for injunctions in the lumber tap line case.

The petitioners ask to be protected from the order of the commission in which they are held not to be common carriers, or in the case in which the lumber companies are petitioners with their tap lines, they ask that the commission be required to consider their complaints that the trunk lines discriminate against the complaining shippers and the tap lines in refusing to establish and maintain through routes and joint rates.

Grade Crossing Ruling in Missouri.—The Supreme Court of Missouri recently held that cities have the power not only to abolish grade crossings but also to require by city ordinance, the depression of tracks.

Louisville and Nashville Enjoined.—The Federal Court at Louisville has granted an application for an injunction by the Western Union Telegraph Company, to prevent the Louisville and Nashville Railroad from removing the Telegraph Company's equipment from the road.

Express Company Liability.—The Supreme Court of the United States has limited the liability of express companies for loss of packages at full value upon which the sender places a lower value to obtain a lower rate. The Court holds that the Carmack Amendment of the Interstate Commerce Law, indicates that Congress did not intend to make the carrier responsible for the absolute loss, but only such loss as may be due to its own negligence. The carrier, it was held, had the right to protect

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itself against fraud by reasonable rules and regulations and the fixing of two rates according to the value of the article was declared reasonable.

Decision in Soft Coal Suit.—The United States Court at Columbus has ordered that the equity of the Lake Shore and Chesapeake and Ohio in the capital stock of the Sunday Creek Coal Company, shall be disposed of by absolute sale. It also orders that the joint ownership and control of the Kanawha and Michigan shall be terminated.

LAND AND INDUSTRIAL.

'Frisco Lines Organize Department of Development.—The 'Frisco Lines began the New Year with a thoroughly organized Department of Development, covering all the territory along its lines.

The industrial, agricultural and immigration work, heretofore carried on through several departments, will after January 1st, be consolidated into one department known as the "Department of Development," one of the 'Frisco's principal objects being to carry to the farmer through its staff of thoroughly equipped agricultural specialists the latest improved and scientific methods of planting, cultivating and harvesting as the same have been determined by the National and State agricultural authorities.

For this purpose, picked agricultural specialists will be located at different points throughout the 'Frisco's territory, whose sole duty it will be to co-operate direct with the farmers. These agriculturalists will have defined territories within which demonstration farms will be established and conducted under the supervision of the railroad company's agricultural representatives, together with the representatives of the National and State Agricultural Departments.

Included in this work will be every branch of farming, dairying, horticulture, poultry raising and stock farming. Such a plan as this will not only materially aid the farmers in increasing their production, but by producing a better article and properly preparing it for market, they will necessarily increase the price of their products.

Such work as this not only benefits the farmer already located, but will be invaluable to the new settler who will at once be informed of the country's resources and possibilities. For this purpose the railroad's agricultural representatives will keep in constant touch with the new settler and aid him in every practical way that will insure his success.

In brief, all branches of the Department of Development will work closely together, and deal with both the old and new settler personally, and encourage in every proper way the development of all the country tributary to 'Frisco rails.

The plan adopted by the 'Frisco is an entirely new one—determined upon after months of investigation in both the United States and abroad, and is the embodiment of the best and most practical methods that could be found.

Demonstration Farms on the Missouri-Pacific.—The Missouri-Pacific Iron System, under the direction of its Agricultural Department is establishing an extensive system of demonstration farms to co-operate with the farmers along its lines.

The company has already established five large demonstration farms and expects to soon have a sixth in operation. These farms range in size from twenty-five to forty acres which makes the undertaking the most pretentious yet inaugurated. Work will be conducted along the same lines as the Government demonstration farm work, but will be on a much larger scale which will make it relatively more valuable.

The United States Department of Agriculture will co-operate directly in conducting these farms and have field agents representing them and the State Agricultural Colleges of Arkansas and Louisiana and the State agents are giving unreserved co-operation in directing the experiments. Each farm is to have a resident manager, and each is to be located along the tracks of the Company's lines in close proximity to a town. The railroad will continue to experiment for at least three years regardless of results, and if at the expiration of that time the work has proved as successful as anticipated, it will be continued indefinitely and both the size and the number of the demonstration farms will be increased. Seed will be sold at reasonable prices to farmers in the surrounding country, and lessons in actual field selection of seed will be given on the ground by expert agriculturalists.

Illinois Central Establishes Additional Experimental Farms.—Twenty-six experimental farms are to be established along the lines of the Illinois Central. Fifteen will be located at various points on the Central of Georgia Railroad and eleven on the lines of the Illinois Central proper. Most of the new farms along the latter line will be in Mississippi.

According to a plan adopted some time ago agreements are made with farmers to direct the cultivation of certain parts of their farms and a guarantee is given to protect each farmer from loss on account of crop failure. A number of farmers have entered into competition with the experimental farms and in several instances, it is said, have achieved more successful results.

Success of the New Haven's Industrial Bureau.—The industrial bureau of the New England lines, which is conducted by the New York, New Haven & Hartford and the Boston & Maine roads, reports that during the first eighteen months of its activities 68 new manufacturing concerns were established in New England.

NEW ROADS.

Illinois.—The Central Illinois Public Service Company have been purchasing power and lighting plants in numerous cities and towns of central Illinois with the expectation of building a net work of interurban lines in that section of the State. It is understood that a large corporation will be formed to acquire new plants, extend the interurban railroads now owned by the Company and build new lines. It already owns a traction line extending from Mattoon

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to Charleston. Extension of its line to Pana and thence to Harrisburg has begun. Branch lines from Pana to Taylorville and Nokomis and a possible extension to Springfield are contemplated.

A company known as the Alton, St. Louis and Cairo Railway Company has been organized with the chief office in St. Louis. The road is to be built between Alton and Cairo, somewhere near the route of the Iron Mountain road. The promoters are: Col. Thos. N. Chase, president; W. R. Borders, vice-president; Adam Hoffman, Sr., secretary and treasurer; W. R. Journey, financial representative; Baxter Brown, consulting engineer and ex-Lieutenant Gov., Chas. P. Johnson and Alexander Young, counsel.

Col. Chase, the president, has been identified with railroad projects for many years. The St. Louis offices are located in the Navarre Building, St. Louis.

Iowa.—A new railroad company has been organized by a group of Burlington, Iowa, business men in combination with outside capital to build a railroad from Burlington to Beardstown, Ill., where a connection will be made with the Baltimore and Ohio Railroad. The road will be known as the Burlington Belt Line.

Kansas.—Contracts have been let for the building of a St. Louis-Kansas City Electric line, and it is reported that work will proceed in the immediate future.

Kentucky.—Articles of incorporation for the Caney Railroad Company of Prestonburg, have been filed with the Kentucky Secretary of State and State Railroad Commission. It will be a standard guage railroad and will branch off from the Chesapeake & Ohio Railroad in Floyd County and follow the middle branch of the Big Sandy River to Beaver Creek, where it will tap the coal fields in Eastern Kentucky. The incorporators are James Salisbury, B. F. Combs, M. Flannigan, W. T. Hite, W. P. McVay, W. W. Brown and A. Flannigan.

Missouri.—The Cape Girardeau Northern Railroad Company, capitalized at $2,500,000, has been chartered by the Secretary of State.. This concern proposes to build a line ten miles in length, connecting Flat River and Farmington. The incorporators are: J. H. Byrd, A. R. Byrd, Geo. W. Simmons, G. H. Walker and Albert T. West.

Nebraska.—Active work started January 1st on the Dakota & Gulf Railroad, projected between Kearney and Beloit, Kansas, a distance of 125 miles. It is reported that the line is financed by English capital, assisted by bond issues of the different towns and counties through which it passes.

Nevada.—Press reports state the former United States Senator W. A. Clark, who owns the United Verde copper mine, is preparing to construct a railroad from Clarksville to Phoenix. The distance by the route that will be followed by the new line will be more than 100 miles. The survey for the proposed road is now being made.

New York.—The Liberty & Callicoon Railroad Company has been authorized by the Public Service Commission to build a railroad to connect Liberty and Jeffersonville in Sullivan County, a distance of 14 miles. The road will pass through Loomis, White Sulphur Springs, Youngsville and Callicoon.

Ohio.—The Lake Erie & Youghiogheny Railroad has been incorporated with a capital of $3,000,000 to connect Youngstown and Conneaut, Ohio. Bonds will be issued and construction work will be started as soon as the weather permits. Although the road was chartered as a steam railroad, it will be operated by either gasoline or electricity. Incorporators are: A. W. Jones, former Lieutenant Governor of Ohio; John H. Ruhlman, William H. Ruhlman, George J. Chapman, and George M. Brown.

Texas.—It is reported that plans are on foot for the construction of a line of independent railway to run from Beeville to Laredo, about 150 miles. It is claimed that a state banking institution has agreed to finance the project. A line such as proposed would give a large section of South Texas a new and short route to the Mexican border. It would connect also with the San Antonio & Aransas Pass at Beeville and with the International & Great Northern, the National Railways of Mexico and the Rio Grande Railroad at Laredo.

The San Antonio and Austin Interurban Railroad Company has just been organized and its charter filed in the secretary's office. Its purpose is to construct an interurban electric railway between Austin and San Antonio, about eighty-five miles. The list of incorporators includes a large number of bankers and other business men in Texas.

The route of the proposed line will be through the towns of Davenport, New Braunfels, Hunter, San Marcos, Kyle, Buda, Manchaco and several smaller places. It is roughly estimated that the construction and equipment will cost approximately $3,000,000. The present corporation has a capital stock of $25,000 and it will be succeeded by a larger corporation, which will be organized later to finance the actual construction. The directors of the company for the first year are: Vories P. Brown, W. B. Tuttle, Jesse O. Oppenheimer and Sam C. Bell of San Antonio; H. G. Henne, New Braunfels; C. L. Hopkins, San Marcos, and A. J. Eilers, Austin.

CONSTRUCTION.

Railroad Construction in the South.—In an elaborate summary of railroad construction in the South, the "Manufacturers' Record" shows that 2,026 miles of new road was built in 1912 exceeding the 1911 record by 200 miles. Plans for the coming year according to this statement look to the construction of nearly 3,000 miles of railroad in the South. Texas led in the year's construction with 348 miles to her credit; Oklahoma came second with 211, and South Carolina third with 171.

Work on the Columbia River Line.—Construction work on the Great Northern's Columbia River line is more than half finished between

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Wenatchee and Pateros. Work on the long tunnels is progressing rapidly.

Extension Plan of the Santa Fe.—The Atchison, Topeka & Santa Fe is planning to build an extension this year from Englewood, Kan., to connect with the Golmar cut-off, somewhere near the corner of Oklahoma, Kansas and Colorado.

Missouri Pacific Cut-Off.—The Missouri Pacific-Iron Mountain system has just completed the cut-off between Memphis and Mariana, Ark., and begun operation of trains over the new line.

Improvements on the M. K. & T.—It is the plan of the management of the Missouri, Kansas and Texas to make improvements in the roadbed and in operation of the line in Texas during the year. Approximately more than $2,000,000 will be expended.

The road also expects to extend its lines both in Texas and Oklahoma during the year.

Southern Pacific to Build New Line.—After three years' effort the Southern Pacific has succeeded in acquiring the last section of right-of-way for a low grade line over the Tehachapi Mountains between Mojave and Kern City to cost $10,000 000. The late decision of the court of last resort ordering a dissolution of the merger with the Union Pacific is responsible for the building of this road.

Double Tracking on the Southern Railway.—The Southern Railway is soon to let contracts for the construction of double track north from Monroe, Va., the southern terminus of the Washington Division of the Southern Railway, to Amherst, Va. This improvement, when completed, will be materially helpful in the movement of trains on the Washington Division into and out of the Monroe terminal.

Extensive improvements have also been begun on its line between Richmond, Va., and West Point, Va. The entire line will be relaid with heavy section rail, and the track reballasted.

Three New Tunnels for the Pennsylvania.—President Rea, of the Pennsylvania Railroad has authorized the construction of three double-track tunnels ranging from 2,500 to 3,500 feet in length and costing approximately $1,500,000, on the Allegheny Valley Railroad between Kiskiminetas Junction and Oil City. The tunnels will shorten the line between Pittsburgh and Oil City by 14 miles.

Double Tracking the Northern Pacific.—The Northern Pacific is to double-track its railroad for twenty-four miles across the summit of the Cascade Mountains at a cost of $750,000.

Double-tracking will extend from Lester, on the Western slope, to Easton, on the east side. The purpose is to enable both passenger and freight trains to make better time across the mountains.

To Shorten the St. Paul.—A surveying party of the St. Paul is now in the vicinity of Great Falls, Montana, for the purpose of establishing the easiest grade possible for a new line for the St. Paul which will cut off over 100 miles from the present line. The new line will be from Lewistown to Great Falls and directly over the Continental Divide, and will connect with the present main line at Bonner.

Soo Line to Cross the Rockies.—President Pennington, of the Soo Line, has announced two extensions from North Dakota into Montana. The Ambrose Line will be extended across Divide County, North Dakota, and eighty-one miles of new road laid which will carry it across the Montana boundary and about fifty miles into Valley County.

President Pennington said that with the plans for this extension and for another extension from Plaza to the Missouri River, about 140 miles of new road in all have been approved. No other extension work is definitely determined upon.

EQUIPMENT.

The Equipment Outlook.—Developments during the first month of 1913 were entirely satisfactory so far as equipment companies were concerned. Not only have all the companies a large aggregate of orders on their books but the demand during January was unusually strong and there is at the present time no indication of a let up. Rail mills in the Pittsburgh district are running at full capacity and heavy orders are constantly being placed. It is estimated that the mills of the country have on their books for 1913 rolling, close to 2,200,000 tons of standard and heavy girder rails, which is the largest January showing in the history of the rail trade. Car and locomotive purchases also continue heavy in spite of the fact that November and December were probably the heaviest two consecutive months in four years.

The consensus of opinion among officials of leading equipment houses is that 1913 will be one of the most prosperous periods in the history of the industry. When it is considered that these companies are at present operating at their full capacity and that orders are booked sufficient to maintain plants at such capacity into the second quarter of the year and that prices are from 15 per cent. to 20 per cent. higher than they were last June, there appears good reason for their hopeful attitude. A recent report from the Baldwin Locomotive Works, states that the company has now enough orders booked for 1913 to keep it running at capacity for at least eight months.

Recent Equipment Orders.—Among the important equipment developments for the month, was the request for bids made by the Pennsylvania Railroad with the view to the purchase of 12,300 new freight cars involving an expenditure of approximately $16,000,000. This is reported in greater detail in another section of this issue. A recent order placed by the Northern Pacific involves an expenditure of $10,000,000 and includes the purchase of fifty Mikado, ten switch and ten Mallet locomotives, besides four thousand box cars, 2,625 refrigerator cars, 250 stock cars, 1,000 Gondola, 200 ore cars, 500 flat cars, 300 automobile cars and 60 oil tank cars. The Harriman line's recent orders also involve an expenditure of some $20,000,000 for the purchase of 246 engines and 12,500 cars.

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A new order of the Illinois Central includes 3,500 Gondola coal cars. Another Western road, the Santa Fe, has recently placed orders to the amount of $5,000,000 which cover a large consignment of both freight and passenger cars, the latter being of all steel construction.

Automatic Train Stop.—Among the automatic train stop devices which have recently been tested by the train control board of the Interstate Commerce Commission on the working tracks of several railroads, is one manufactured under patents owned by the Railway Automatic Safety Appliance Co., of Du Bois, Pa. The operation of this device is mechanical, as distinguished from those using electric devices in the engine. It consists of an arm supported on a standard beside the track, controlled either by or independent of block signals. When a block or a switch is closed against an approaching train the arm is in a position to trip a small catch located on the breast beam of the locomotive, opening the train air line and setting the brakes. This appliance is made in types for both manual and automatic operation, the latter using either electric control of the track stand or electric-pneumatic. It is asserted to be a fully developed and dependable apparatus, of few parts and simple in operation.

NEW PUBLICATIONS.

The Story of Panama.—The new Route to India. By Frank A. Gause and Charles Carl Carr. Boston: Silver, Burdett & Co.

Columbus, if he happens to be in a state to observe the progress of the world, doubtless rejoices to note that the route to India, which he sought more than four centuries ago, is about to be completed. An account of the Panama Canal is necessarily much like a news story—a narrative of progress that cannot be completed until the great waterway is opened; but this little volume contains an excellent summary of the work to date. The authors are officials of the school department of the Canal Zone, and their work obviously is authentic and unprejudiced, and it is written in the vivid, direct style characteristic of the newspaper writer.

Half of the volume is devoted to the canal, its inception, its construction and the administration of the Zone; and the remainder covers briefly the history of the Isthmus. As a short history of Panama and the Canal the volume may be strongly recommended, and it is especially well adapted for schools as supplementary reading for classes in history and civics.

An Invitation to American Farmers.—"An Invitation to American Farmers" is the title of a handsomely illustrated folder just issued by the Southern Railway, calling attention to the Fifth National Corn Exposition, to be held at Columbia, January 27 to February 8, 1913. A large number of these folders will be circulated among northern and western farmers and they will also be placed in the hands of farmers throughout the south.

The folder not only sets out the attractions of the National Corn Exposition but gives interesting facts concerning the agricultural possibilities of the South which should appeal especially to farmers in other sections of the United States.

In getting out this folder the Southern Railway is aiming to co-operate for the success of the National Corn Exposition at Columbia and at the same time to call attention to the South as a corn country in the hope of attracting desirable farm settlers to this section.

TRADE NOTES.

Motor Truck Development.—Fifty thousand motor trucks and delivery wagons is believed to be a conservative estimate of the number now in use in the United States. Carefully compiled reports made at the beginning of the year showed that there were then, in round figures, close to 30,000, and State and city registrations of motor vehicles compared with those of a year before proved that the number of these vehicles is doubling annually.

Estimates of the probable production for the coming year vary widely, because many motor car manufacturers can regulate their output to correspond with demand. Based on the rate of increase in the past, the output should reach about 50,000.

Rapid as has been the yearly increase in the number of pleasure automobiles, the percentage of increase in trucks and delivery wagons has been almost twice as great. There are more makers of commercial cars in America now than there are manufacturers of pleasure vehicles, the list comprising more than 300 names.

Motor vehicles are used for industrial, commercial, municipal and federal purposes by more than 250 distinct lines of business. More than 4 000 are operated in New York City and more than 2,000 are registered in Chicago.

The total average cost of operation and maintenance of gasoline machines ranges from about $8.50 per day for a one-ton truck, to $18.50 a day for a ten-ton truck. The average for electric vehicles is approximately two-thirds of these figures, but their mileage is proportionately less. It costs a little more than $5.50 a day to keep and use a one-horse outfit and $8.50 a day for a two-horse team, but a horse or team cannot average more than fifteen miles a day against from fifty miles for a five-ton motor truck to 100 or more for a one-ton truck.

The recent motor truck exhibition at Madison Square Garden, New York, was a pronounced success and was visited by representatives of thousands of companies located in the New England, Middle Atlantic and Southern States. Much interest was manifested in the various trucks exhibited and a pronounced stimulation in this trade is predicted for the present year.

At Chicago from February 10th to 15th, will be held an exhibition of commercial motor vehicles similar to that held in New York, and it is stated that the display will be larger and more diversified than ever. Sixty-five motor truck and delivery wagon companies have contracted for space and there is a waiting list of belated applicants. In all there will be on exhibition about two hundred and fifty different models of motor vehicles suitable to every kind of industrial, commercial, municipal and federal purposes.

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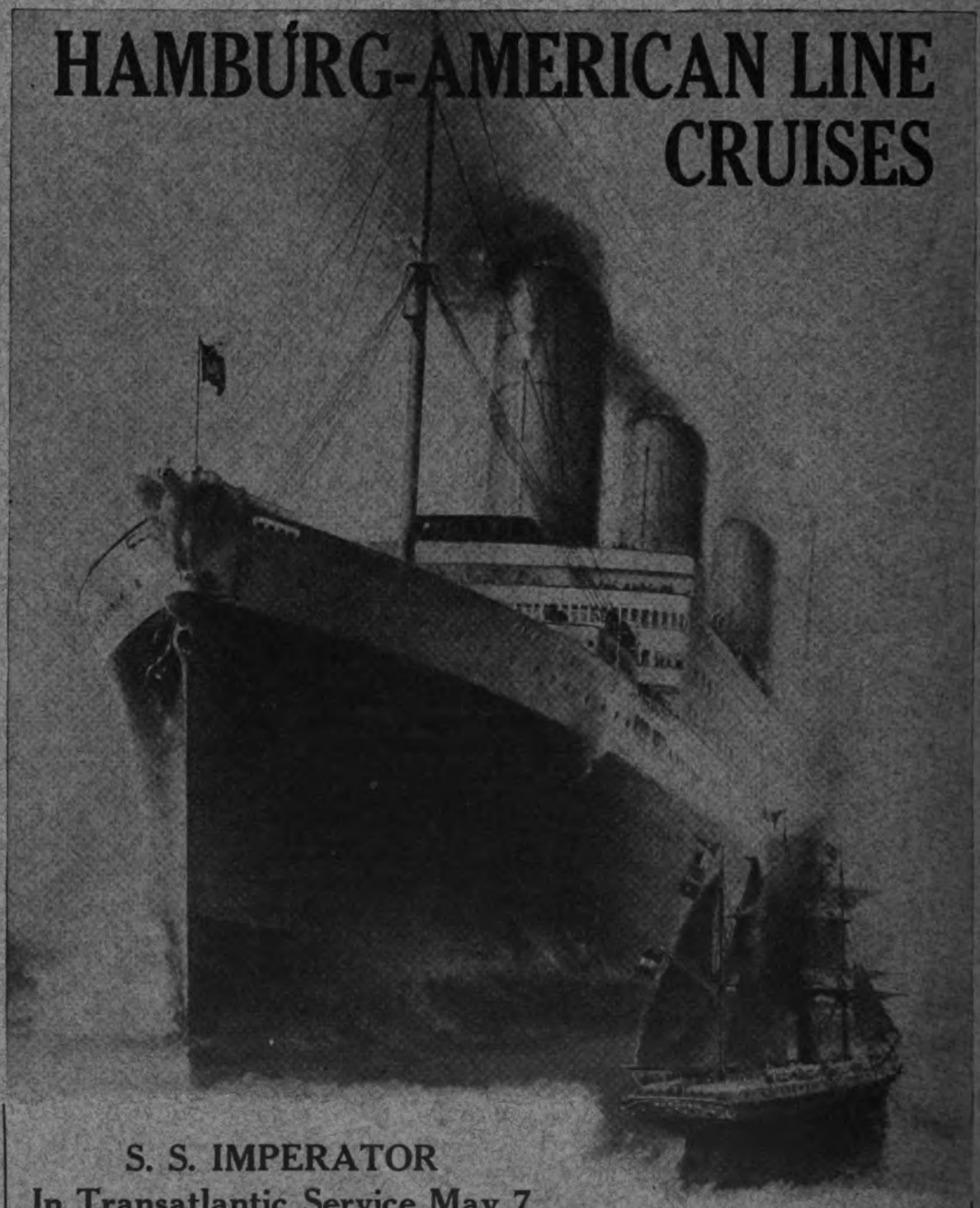

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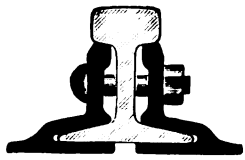

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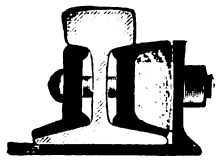

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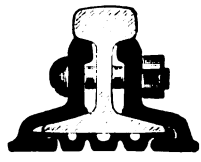

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Railway World

VOL. LVII. MARCH, 1913 No. 3

Important Developments in the Transportation Field

NOTEWORTHY ADDRESSES BY PROMINENT MEN

Among the points of superiority which the Englishman claims over the American, is the finer quality of English post-prandial and political oratory. When an Englishman, prominent in the business or political world, rises to speak he is expected to say something worth listening to, and usually does not disappoint his audience. Some of the most important deliverances of British Cabinet policy have been made at public meetings, and many of them at banquets and other celebrations. In the United States, until quite recently, little could be said in praise of the public speakers. Political speeches were, with a few shining exceptions, pure bunkum, often written by secretaries or other subordinates, and sometimes prepared by bureaus. Addresses by men not in politics were usually composed of colorless and, therefore, innocuous platitude, often garnished by ancient anecdotes, and usually tiresome and tedious in the extreme. Our political speeches have not greatly improved. The last few years have, however, seen a revolution in the style and substance of business men's utterances. The higher officials of corporations, unable to place their side of the various controversies, to which they were parties, fairly before the public in any other way, have resorted to the method of public address. Their speeches, as a result, so far from being calculated to conceal anything of interest or importance, have grown amazingly frank and correspondingly interesting.

The past month has been noteworthy for several important utterances by the leaders of American industry. Perhaps the most interesting deliverance of this character was the address of Howard Elliott, president of the Northern Pacific Railway Company, before the Rotary Club of Superior, Wis. Mr. Elliott discussed an old subject in a new way. His theme was the familiar one of fair treatment for the railroads. In support of his position, however, he brought forward some facts which, while of peculiar interest to his auditors, are also of national

HOWARD ELLIOTT,
President Northern Pacific Railway.

importance. From 1896 to 1912, President Elliott said, the Northern Pacific had expended for permanent improvements and betterments on its property, all of which were properly chargeable to capital account, $220,000,000. This vast sum, however, must be largely increased in the next few years if the Northern Pacific is to perform the service which it is capable of and which is demanded of it. For example:

"Superior has right at its door about 1,000 square miles, or about 700,000 acres of land that is practically not used. The soil is known as 'Superior clay.' It is productive when properly treated, and experiments made on the State experimental farms show that excellent crops of cereal grains, food vegetables, including potatoes, corn and berries, can be produced, as well as clover, timothy and other forage crops. This great area is well situated and adapted for dairy and hog raising—with a ready market close by and far off through rail and water transportation now in existence. Have not Superior and the State neglected an opportunity here while they have either actually or passively permitted the time and energy of their law makers to be taken up with matters not really so important to them?"

In spite of this clearly perceived need for railroad expansion, and in spite of the admitted impossibility of securing large amounts of capital for the construction of

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these new facilities, the people of the Northwest persist in their agitation against the railroad. In the seven States in which the Northern Pacific operates, the various legislatures in 1911 considered 230 bills concerning railroads, most of them conceived in a spirit of antagonism to railroad interests; and yet, so far from deserving this hostile treatment, and laying aside all claims to favorable consideration because of their service in building up the country, the railroads of this section are performing their routine public service of transportation with extraordinary efficiency. On the Northern Pacific, for example, there are about 10,000,000 separate consignments of freight that must be handled each year, receipted for, waybilled, and handled at destination. Last year the company received 126,176 claims for over, short or damaged freight, only 1.25 per cent of error. The company handled 1,825,000 pieces of baggage and there was one claimed error for every 4,138 pieces handled. "There were 8,661,645 revenue passengers carried. Of these one was killed because he jumped off a moving train, and one infant died because its mother fell down on the child on the station platform. There were 250 cases of injury to passengers, or one casualty to every 34,500 people carried."

This record, as President Elliott claims, should entitle the Northern Pacific to the most favorable regard of the communities which it serves.

In a final word as to how the present position of the railroads can be greatly helped, Mr. Elliott said:

"Each of you have a vote and a voice and help to make public opinion in your town, county and State. If the legislatures in many Western States which are now in session consider more carefully than they ever have before the wisdom or necessity of not putting new burdens and restrictions on the railroads, the position of the latter would be greatly benefited. Many of the things that cause ill-feeling are gone—the pass, the rebate, unjust discrimination. The railway men have learned much in the last fifteen years, as well as the commissioners and the people. Now the things which cause irritation are mostly lack of facilities and failure to provide promptly more modern and superior facilities, all of which cost money, often without return, and that money the railroad man has hard work to get. It will be still harder if you who elect your public servants do not investigate and tell them that while you would like very cheap transportation you do not want a price put so low that you have not enough transportation and what you do have is of a poor quality."

In a more pessimistic vein, Colonel James Hamilton Lewis, candidate for United States Senator from Illinois, discussed the problem of corporation regulation before the Chicago Traffic Club. Colonel Lewis claimed that under the designation of agents there are "46,000 individuals who serve as spies, watchers, decoys, betrayers, silent accusers, and secret slanderers of everything which pertains to the citizen of America. In a free government, by permission of things called law and regulation, these individuals like imps surround the cup from which the citizen drinks, shadow the table at which he eats, darken the threshold over which he lives, and sit like a thing of evil over every department of his undertaking." Colonel Lewis claims that $5,000,000 a year was spent by the Government in various departments of espionage and investigation. And he concluded with this forcible utterance:

"There is no man engaged in any large undertaking who can escape the Government presumption that he is dishonest and his business a fraud. No small business man can aspire to equality of competition except as the Government shall permit him to do so. This is allowed only under the prescribed restraint of the citizen's ambition and the governmental limitation on his capacity.

"Big business stands in fear, little business in despair.

"Business men tremble in terror of the uncertainty of the national law, and business in the different States is clutched with national regulation paralysis."

On the other hand, the advocates of regulation are by no means silenced. Concerning the railroad transportation problem, for example, Governor Herbert S. Hadley, speaking before the New Haven Chamber of Commerce, said: "The people have a right to insist that the (railroad) charges be so fixed as to yield only a reasonable rate on the value of the investment, and that the funds derived from railroad operation should not be used for the purpose of stock speculation, or the purchase of controlling interests in competing lines."

We may remark, in passing comment upon this deliverance of a Missouri statesman, that there are no cases on record in recent years where the profits from railroad operation have been used for either of the purposes which Governor Hadley so roundly condemns. The last great speculative deal in American railway history was the Alton reorganization in 1899, and the last great consolidation which arose out of a speculative situation was the purchase by the Atlantic Coast Line of the controlling interest in the stock of the Louisville and Nashville in 1902.

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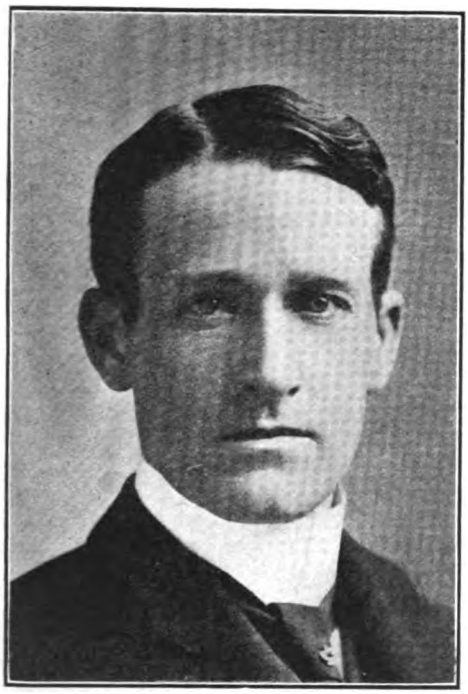

GOVERNOR H. S. HADLEY, OF MISSOURI.

Attorney General Wickersham is also an ardent advocate of stringent measures designed to control corporate activities. Speaking on "Equal Opportunities" at the Merchants and Manufacturers banquet in Baltimore, he said, "After all, the underlying philosophy of the so-called economic legislation of which the Sherman anti-trust law is a conspicuous example, is very simple. It is merely to prevent a particular group of people from compelling others by force, violence, fraud, or unfair means, from exercising their rights as free men, to pursue their vocation in such lawful manner as they think best. It is in recognition of these principles that Congress has enacted, and the national administration has sought to enforce, the laws against illegal discrimination and transportation, and undue restraints on trade. The effort has been to save the initiative energy and enterprise of the country from the deadening influence of governmental conduct of private business. If this prove ineffective, control of business by national commission will be inevitable, with control of prices of staple commodities, since price control is the aim of monopoly and the concern of the public."

Going much deeper than the superficial facts of everyday observation, Mr. Walker D. Hines, of New York, chairman of the Executive Committee, and general counsel of the Atchison, Topeka and Santa Fe, in the annual address which he delivered before the Kansas Bar Association at Topeka, contrasted favorably with what he termed the "general inefficiency" of our government, characterized, as it is, in nearly all departments by a lack of definite individual responsibility, the regulation of the railroads. This, he said, "is the most rigid and effective regulation we have in this country, and we find that in that matter the States have had to depart very widely from the principle applied to governmental matters in general. This is true because the railroads are regulated through commissions which are small enough to avoid widely scattered responsibility which combine executive functions with functions which are practically legislative, and which have a central responsibility for the enforcement of the law throughout the State. The ordinary methods of State government would never have succeeded in regulating the railroads effectively, and those methods cannot be expected to succeed with respect to the numerous other complex subjects which must be successfully regulated in order to meet the legitimate requirements of the people."

In a survey of the present trend of business regulation, Mr. Charles M. Schwab, president of the Bethlehem Steel Company, speaking at the annual dinner of the Engineers' Society of Western Engineers at Pittsburgh, sounded a conservative note of optimism. "It is my true belief," he said, "that however bad, no legislation nor agitation will stand that will strike off the fundamental roots of economical manufacture. Many of you engineers and manufacturers thought that when the Interstate Commerce Commission was formed business in the country would be ruined; but you have found otherwise. So it is with other business and manufacturing agitation." This conclusion is one to which every intelligent and observant citizen can heartily subscribe. Nothing con stop the steady development of American business. In so far as the numerous regulations, restrictions and ordinances which have been imposed for its guidance upon the business man for his direction and guidance, conform to the permanent development of American industry, they will stand and be incorporated into the habits of thought of the American people. In so far, however, as these regulations are impediments to the stream of progress, it will first flow around them, and then entirely submerge them.

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There can be no doubt that out of the anti-corporation movement of the last decade, harmful to honest business men and legitimate business interests as this agitation has often been, has arisen a new corporate conscience and a recognition on the part of men of large affairs that they are in the fullest sense trustees for the welfare of the American people, charged with the duty of administering their great enterprises not alone with a view to private profit but with the primary object of furthering the public welfare.

TO ARBITRATE FIREMEN'S WAGE CONTROVERSY

After several weeks of discussion, accompanied by the usual display of force and menace of a general strike, the Conference Committee of Railway Managers, representing fifty-four Eastern roads, on February 18th, agreed to the demands of the Brotherhood of Locomotive Firemen and Enginemen, that the dispute over wages be arbitrated by a board of three arbitrators under the Erdman Act. The railroads strongly objected to the method of arbitration insisted upon by the firemen, and in a letter sent by Elisha Lee, chairman of the Conference Committee of Managers, addressed to Judge Martin A. Knapp, of the United States Commerce Court, and acting Commissioner of Labor G. W. W. Hargar, through whose efforts the parties have been brought together, they state their objection as follows:

W. W. ATTERBURY,

Vice-President of the Pennsylvania Railroad, who has been appointed to represent the Eastern carriers in the arbitration of the Firemen's Wage Controversy under the Erdman Act.

"The responsibility which ultimately would rest upon a third member of an Erdman arbitration board was too great to impose on any one man. The operation of the Act is to settle a dispute rather than to adjudicate a controversy.

"The arbitrators are three in number. Each side is represented by one arbitrator. It rests, therefore, upon the third arbitrator to bring the other two arbitrators as nearly as possible together, and if he cannot do so he must decide between them. This is accomplished by splitting differences, and the case may be adjusted without adequate investigation of the facts involved, and the award may not rest upon a basis of equity.

"But the most fundamental defect of the Erdman Act is that the interests of the public are not guarded by it.

"The managers feel that the public will not tolerate a strike, and realizing their threefold responsibility to the public, their men and their shareholders, they only agreed to arbitration under the Erdman Act when it seemed the only way to avert the calamity of a strike. The Firemen's Brotherhood has no responsibility except to its members."

The proposition of the railroads was that the controversy should be arbitrated by a board similar in composition to that which settled the difficulties with the engineers. The Conference Committee thought there should be an increase in the wages of firemen. The only difference between the parties concerned was the amount of the increase. This difference, it was proposed to leave to an impartial board. The board, as constituted under the Erdman Act, cannot be impartial. It is a decision of a question of immense public importance, practically by a single man. This decision must be announced within thirty days, a time altogether too short for investigation of the numerous and complicated questions involved, and finally, as Mr. Lee points out, arbitration of this character always results in a compromise. The umpire will naturally refuse to accept the responsibility of deciding unqualifiedly, in favor of either side. The result will be a substantial gain for the firemen. This process can be resorted to indefinitely and there is no end short of the limits imposed by insolvency, to which organized labor is not apparently determined to go in its efforts to increase wages. The machinery established by the Erdman Act is admirably calculated to secure for them, on the occasion of each demand, the substantial portion of what they asked for, and they have only to make their demands large enough to gain everything that they really want.

Organized labor in the railway field is "holding up" the railroads and through the railroads, the public, to pay them higher wages under the threat of inflicting num-

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erous damages upon the business interests of the country by means of a strike. The strike vote is the invariable threat of these negotiations. The representatives of the various brotherhoods, when they come into conference with the Conference Committee of Railway Managers, flaunt the threat of a general tie-up of the railroads, in case their demands are not granted. If it were a question of considering the admittedly excessive demands of the firemen *in toto* or precipitating a strike, the Conference Committee probably would not have assisted, since without the support of public opinion, (and it is inconceivable that the firemen could have gained this support under the assumed conditions) the strike would have been a failure. The men are, however, offered a form of arbitration, and poor and inadequate as this form may be, it was a wise and public-spirited act on the part of the railroads to accept it, in the hope that the public will soon take the same position toward this method of settling dispute, as they now assume toward the method of a strike. As Chairman Lee said:

"The question the public should seriously consider is whether, in compelling the railroads to arbitrate under a defective and inadequate law and in this securing temporary convenience and accommodation, they are not sacrificing their permanent welfare.

"The Managers' Committee wishes to warn the public at this time of another and similar demand for increased wages made by the conductors and trainmen. We desire to put the public on notice as to the crisis that will confront them when these demands are considered by the railroads.

"We also desire to call attention to the serious public danger of these recurring demands, backed up by repeated demands that the railroads arbitrate 'under the law.'

"The whole situation is now in the hands of the Government and the people. They have taken it out of the hands of the managers at a time when the latter hoped to make a stand for the public good."

The public will await with interest the result of the findings of this arbitration committee. For the first time, the attempt has been tried to arbitrate a large controversy under the Erdman Act. As for the railroad managers, they are convinced that the result of the experiment will show the imperative necessity for providing some permanent method of settling these disputes which should especially concern the public welfare.

FRANK HITCHCOCK,
Postmaster-General.

MEASURING THE EFFECT OF THE PARCEL POST

Railway men and express company officials are observing with keen interest the development of the Government's experiment with the Parcel post. The annual report of Postmaster General Hitchcock contains certain important suggestions looking to the extension of the system. The Postmaster General intimates that a considerable reduction may be made in certain of the rates, and furthermore, which is of the most serious moment, that the eleven pound limit on the weight of parcels mailed should be regarded as "merely tentative." "After the system is thoroughly organized on that basis," he says, "the scope of the service in its usefulness to the public should be still further enlarged by increasing the weight limit." In connection with the establishment of the parcel post, the Postmaster General recommends that legislation be enacted looking to the readjustment of the payments to the railroads for the transportation of mails. "Many of the roads," he says, "will be entitled to increased compensation," and he renews his recommendation that payments to the railroads carrying the mails shall be made on a car-space basis, and upon a basis of the cost to the roads of the mail transportation.

While the loss to the railroads from the extension of the parcel post is conceded, it is not equally certain that the express companies have seriously suffered. One of the

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large express companies, which has been keeping a close watch on its business and receipts from different classes of service, finds that on parcels under eleven pounds into which parcel post competition enters, it has sustained a gross loss of 25 per cent since January 1st. On the other hand, the increase in packages over eleven pounds has been sufficient to result in a fair gain in revenues over January, 1912.

That the new system has been a success on the basis of the volume of business handled, is seen from the statement authorized by the Postmaster General that 40,000,000 packages have been handled during the first month, and that the volume of traffic had been so greatly increased that $750,000 was needed at once to meet the new conditions. A large expenditure will be needed, among other things, to provide additional space for handling the new business.

While the express companies are not indifferent to the possibilities of loss resulting from the introduction of Government competition into their business, they are, nevertheless confident that even for the immediate future, they can hold their own. In this connection it is pointed out that only, 40 per cent of their profits comes from the business of transportation, the balance is derived from income on investments and from service, such as the transportation of money, and the sale of domestic and foreign exchange which they perform.

The total business to be handled by mail and express is rapidly increasing, and it is fair to assume that it will increase the more rapidly because of the efforts which both the Government and private agencies, interested in the extension of the parcel post, will make to educate the rural population in the advantages of extending their direct relations with the consumer. While the result of this campaign of education will undoubtedly be to increase the business of the Postoffice Department, it is equally certain that the express companies will gain largely in the shipment of heavier packages. The situation is analogous to that presented twenty years ago by the rapid development of the electric railway as the competitor of the steam lines. At that time, it was freely predicted that the railroads would suffer so severely that they would have to abandon their short distance passenger traffic. So far from this having been the result, however, it is now recognized by passenger officials that the rapid extension of the interurban electric railway, because it has at the same time stimulated the habit of travel, and also brought a large population into direct contact with the steam lines, has been responsible for a considerable portion of the large increase in passenger business which the railroads have enjoyed in recent years. There is no reason to doubt that the extension of the parcel post will have a similar effect upon the business of the express companies.

CONFLICTING VIEWS ON THE "SHIPPING TRUST"

As a result of the testimony which has been taken by the House Shipping Trust Investigating Committee, it is clearly evident that any attempt to break up the methods which are now in vogue will be to inflict serious damage upon the shipper. Two features under which the present system is conducted, which the testimony has revealed, have been the existence of "pools, rings and conferences among the shipping companies and the rebates and discounts to shippers."

The shipping conference is the application of the co-operative principle to the business of ocean transportation by arrangement between the members of the Conference. The individual owners place their boats in the United States service, covering the regular ports on schedule time and giving the shipper regular and continuous sailings on which he can depend. Excess tonnage is kept in reserve and diverted to those ports where it is needed. The result is a regular supply of transportation service and reasonable and stable rates which can be counted upon and corporated in business plans instead of the extraordinary fluctuations, ranging from an unprofitable rate to the shipping company to a prohibitive rate to the shipper, which were formerly in vogue.

These agreements demand for their successful working, some such guarantee as is secured by pooling their earnings, and a necessary feature of it is also the system of discounts and rebates to shippers who patronize the line. The public does not realize that the business of ocean transportation is conducted under conditions fundamentally different from those which surround the railroads. On land each railroad owns its own land; competitors can come upon its rails only by agreement and by paying for the privilege. The ocean routes, however, are free to all without charge. If a tramp steamer calls at a port which is served by regular lines of steamers and in order to in-

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crease its profit on the entire round trip voyage, offers transportation at a cut rate only justified by the fact of an empty hold on a return voyage, the inducement is sure to attract some exporter, anxious to gain an advantage over his competitor. By taking the space in the tramp steamer he gains a temporary advantage over these competitors, and to that extent, inflicts damage upon them.

The regular line is now called upon by its patrons to protect them against this competition. Two methods are open to furnish this protection: first, to meet the cut rates, which means that the regular line must do business at a loss, and second, offer some substantial inducement to its patrons to use its line to the exclusion of the tramp steamer which is in no position to give them regular service. The working of this inducement was explained by Mr. Lorenzo Daniels, of the firm of Busk and Daniels, general agents of the Lamport and Holt Line, in an interview in the New York *Journal of Commerce*, as follows:

"In other words, the idea of the discount or contract between the shipper and the regular line is one of continuous service on the one part and continuous support on the other; and, unless this agreement takes substantial form in the shape of a five per cent or ten per cent cash discount, human nature is such that there is always some merchant willing to sacrifice broad principles for the present opportunity of beating out some of his rivals. The larger merchants, the trade as a whole, and every merchant that is conscientious will admit that on broad lines reguarity of service and stability of rates, provided always, of course, that there is no unreasonableness or excessive charge, are the backbone and structure on which healthy, progressive commerce is developed; and the discount, commission or bonus system is the outward or visible sign, so to speak, that causes the selfish man who would beat his rivals out to stop and think whether it is worth while; and he generally discovers that his little discount coming from the regular lines more than counterbalance any value the bargain or bargains that he may be offered during the year. In other words, the discount or rebate system is a 'quid pro quo' that the regular line can afford to pay to secure stability in the steady flow of traffic and rates and is an equivalent that pays the merchant at the end of the year a better value than occasional bargains, in addition to the fact that it enables the transportation service in the trade to be steady, regular and efficient.

"I might further add indirectly that one merchant putting through a business transaction at a cut rate, based, we will say, on picking up a bargain that did not pay the owner on its own merits, disorganizes and entails a loss on ten other transactions of equal magnitude that the regular merchants in the trade must bear."

That the result of the investigation will be some extension of Government control over the ocean transportation business seems certain. Such a control, however, must recognize, just as the Interstate Commerce Commission recognizes, that agreements of some nature are necessary to insure stability of rates, and furthermore, that the peculiar conditions under which ocean commerce is conducted imperatively demand the continuation of those special arrangements which have done so much to bring regularity and order into a business, where before their introduction all was confusion, uncertainty and disorder.

PANAMA CANAL DEVELOPMENTS

In sharp contrast with the declaration of Senator Root in his noteworthy speech in the Senate, that the United States Government was wrong in granting free passage through the Panama Canal to coastwise commerce unless the same concession was made to foreign ships, is the reply of Sec-

IRVING T. BUSH, President of the Bush Terminal Company, who discusses the probable future influence of the Panama Canal.

U. S. SENATOR ROOT, of New York, who opposes the granting of free passage through the Panama Canal to coastwise vessels.

SEC'Y. OF STATE KNOX, whose able reply to England in the Panama Canal controversy has caused nation-wide interest.

COL. G. W. GOETHALS, whose recent visit to the United States developed into a series of ovations and receptions.

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retary Knox to the British protest against this exemption. This reply takes issue with the claim on which Senator Root's argument was based, namely, that the exemption of domestic commerce from tolls through the canal will result in an increase in those tolls to be paid by foreign ships. Without admitting that the burden of proof rests upon the United States to show that the entire traffic passing through the canal has not been reckoned with in fixing upon the tolls and that consequently they are equitable, Secretary Knox informs the British Government that such is the case, and that in adopting the rate of $1.25 per ton, Prof. Emery R. Johnson included American coastwise shipping in his calculation. The exemption of the coastwise traffic from the canal tolls is, therefore, a form of subsidy. Nearly all nations subsidize shipping directly. This is an indirect form of subsidy which will cost Great Britain nothing, since it does not help any vessels competing with British boats, because all foreign vessels are excluded from coastwise trade. It is by no means certain that Sir Edward Grey would have made such a strong protest, had he known of this point made by the American Secretary of State, before he wrote his communication.

Secretary Knox has an alternative to the immediate exchange of ratification of the as yet unratified Knox-Bryce general arbitration treaty, which President Taft has so far declined to consummate because it limits the power of the special commission provided for in the treaty, to mere investigation and report, refusing to permit the Commission to bind either country. It consists of a commission to be created for the special purpose of ascertaining the facts in reference to the effect upon British shipping of the Panama Canal toll act and the present proclamation fixing the toll.

Of greater interest than this exchange of diplomatic opinion, is the effect of the Panama Canal upon American commerce. Mr. Irving T. Bush, president of the Bush Terminal Company, in a communication to *Financial America*, calls attention to the danger that New York may fail to gain the expected increase in commerce because of lack of preparation for additional business which may come to that port because of the opening of the canal. Mr. Bush is of the opinion that when the canal is first opened there will be but little change in the commercial importance of the different American seaports.

After the canal is in full operation, however, he sees a gradual rearrangement of the terminal ports, based upon operating costs. The North Atlantic ports will stand or fall together in their gains or losses in the opening of the canal. They are all threatened, however, according to Mr. Bush, by the competition from New Orleans which is more than 1,000 miles nearer the mouth of the Panama Canal than is New York, and which will have a marked geographical advantage as a port of entry for the distribution of merchandise brought from the Orient throughout the Mississippi Valley. The present ocean commerce from the East comes mainly through the Suez Canal to New York, and the opening of the canal may have the effect of diverting most of this commerce to New Orleans.

As for the Pacific Coast, so far from subscribing to the opinion that one of the effects of the opening of the canal will be to stimulate the locating of manufacturing industries in that section, Mr. Bush is of the opinion that the first effect will be to retard Western manufacturing, because it will reduce the transportation cost of Eastern manufactured products to the West coast.

The importance of properly defending the canal continues to engage attention. The canal was primarily designed as a means of strengthening the naval position of the United States, and its fortification is engaging the constant attention of the War and Navy Departments. The sites of the coast artillery fortifications have already been decided upon and the work upon the forts has already begun. A force of about 8,000 soldiers will be sent to the Isthmus as soon as the fortifications are completed.

Speaking before the House Naval Committee, Colonel Goethals, in charge of constructing the canal, assumed as settled that no foreign fleet would run the risk of engaging the land battery in making a demonstration against the canal. Their efforts would be to first defeat the naval force and then to land troops to attempt to capture or destroy the locks. He did not believe that 8,000 men would be sufficient for the defense of the canal, but admitted that this is about the proportion of our present military force which could be spared. With 25,000 men Colonel Goethals said the canal could be held against a siege. Of the 8,000 men sent to the canal, 2,200 would man the coast defenses and the remaining 5,800 would consist of infantry, cavalry and field artillery available for the defense of the locks. This force will be sufficient to protect the canal against a landing force of not to exceed 6,000 men.

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HENRY P. DAVISON,
of J. P. Morgan & Company.

END OF THE "MONEY TRUST" INVESTIGATION

The Money Trust inquiry, for the present at least, has come to an end. The most notable testimony in the closing sessions of the Committee was undoubtedly that of Henry P. Davison, of J. P. Morgan and Company. Mr. Davison was extremely frank and outspoken in his defense of the existing financial order. The question of further concentration, he said, depended entirely on the business of the country. He declared that he favored "combination and control of industries under Government regulation as opposed to free, unrestricted competition."

"Do you believe," said Mr. Untermeyer, "three or four or half a dozen men should be allowed to monopolize any industry so long as they do not operate through a holding company?"

"I don't know how you could prevent it, if they had the financial backing and the ability to do it," asserted Mr. Davison. "I have no objection to it. If it was wrong it couldn't live. I see no necessity for a law to prevent it. It would fall of itself in the making."

"Are you opposed to trusts?" asked Mr. Untermeyer.

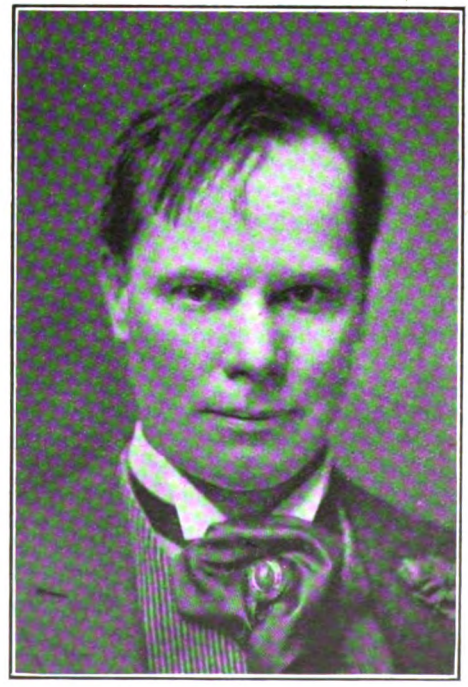
"I would not say that I was wholly in favor of them in the making, but I was not opposed to them after they were made. I think they were a great blessing to the country."

Mr. Davison further said that he thought it was "unfortunate for the people of the entire world" that the courts interfered with the trusts "as they have done."

"Do you think it was wrong for the courts to interfere?" Mr. Untermeyer asked.

"No," he replied, "but I think it could have been approached better from the other direction, by regulation, not disintegration. You cannot any more dissolve those trusts, in effect, than you can move this continent across the Atlantic Ocean."

There is a conviction among those who have closely followed the inquiry, that it will not be resumed by the House of Representatives or any of the committees. The only fact brought out by the investigation has been the concentration of financial power. This was well known long before the Pujo Committee was thought of. Indeed, the same facts which were elicited from the various witnesses by Mr. Untermeyer, were brought out by Senator LaFollette in a speech in the Senate five years ago. There is hardly a new fact which has been brought out by the investigation, which is one of the most expensive ever conducted. The recommendations for new legislation, which the committee submitted to Congress on February 28, will be discussed in the March issue.



GOVERNOR WILLIAM SULZER,
of New York.

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GOVERNOR FOSS, of Massachusetts.

GOVERNOR BALDWIN, of Connecticut.

GOVERNOR POTHIER, of Rhode Island.

Three of the New England Governors who recently attended the meeting called by Governor Foss, of Massachusetts, to consider the New England transportation situation.

Active efforts in the direction of financial reform have shifted from Washington to Albany. Governor William Sulzer, in a special message to the State Legislature, dealt with the subject of remedial legislation regarding stock exchanges. Although recognizing the necessity of the exchange he claimed that, as present constituted, they contained serious evils demanding immediate remedy. These evils, briefly summarized, are manipulation,—including short selling, more stringent rules preventing the "bucketing" of customers' orders, legislation prohibiting brokers from doing business after their known insolvency, prohibition on the issuing of false statements, and discrimination against other exchanges. On the basis of these recommendations ten bills have been introduced into the Legislature which are, in substance, and in the order of their introduction, as follows:

First. Establishment of a maximum rate of 15 per cent for call loans.

Second. Making it a felony to purchase or sell stock in which there is actually no change of ownership.

Third. Making it a felony to issue or publish any false statements of any facts affecting the price of stock.

Fourth. Making it a felony to inflate or depress the price of stock by means of fictitious purchases, sales or other transactions, or to conspire for such purposes.

Fifth. Prohibiting a broker from purchasing or selling stock and trading in them against his customers' orders.

The object of this measure is to prevent a broker from taking advantage of the confidential relations with his customer for his own profit.

The sixth measure makes it a felony for the broker to receive from a customer, ignorant of the broker's insolvency, moneys or securities except in liquidation of a debt due to the broker, if the customer loses as a result of such transaction.

The object of the seventh measure is to more effectively enforce the law against "bucket shops" by providing that a witness shall not be excused from testifying on the ground that his testimony may tend to convict him of a crime, with the proviso that he shall not be prosecuted for any incriminating matter or thing concerning which he may testify.

Eighth. A bill providing for the incorporation of exchanges.

Ninth. To prevent a broker from "shading" in any way an order of a customer.

Tenth. A bill which will prevent discrimination against other exchanges, particularly the Consolidated Stock Exchange of New York.

THE NEW ENGLAND GOVERNORS AND THE RAILROADS

The meeting of the New England governors called by Governor Foss of Massachusetts, to consider the transportation situation, was attended by every governor except Haines of Maine, who excused himself on account of illness. In the letter calling the meeting, Governor Foss indicated that the substance of the resolution

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which he would offer looked toward the establishment of a railroad commission for the whole New England, to be called the New England Transportation Commission. The letter concluded:

"My idea is that the scope of the work of this New England Transportation Commission should be broad. The Commission should call upon the railroads to provide such facilities for the service of New England as they may decide to be requisite; they should also determine whether New England rates are upon a proper basis and use their influence to make the rates in and out of New England favorable to the development of this region.

"It may be said that the orders of this Commission cannot be given the force of law; but this Commission would prove to be a formidable board to deal with. No corporation would dare to disregard instructions from a body made up of the executive heads of the State commissions, and the recommendations of such a board ought to insure identical legislation in the various legislatures. It would have behind its decisions the virtual authority of the six commissions, to say nothing of the united opinion of the six States.

"I am inclined to believe that we must insist upon having a voice in the management by the appointment of a certain number of directors, in order to feel secure of our future. Directors appointed by the States would have authority in determining the policies of railroads which could be obtained in no other way, and they would have also opportunities for inquiring into transactions and opposing their consummation at an earlier stage than any regulating body could take action. With both a share in the management of the company by State directors and a control of that management by a special commission, I think that we could face the future with confidence that we had full control of our destinies."

While little has been made known concerning the results of the conference, it is supposed that an agreement was reached to put into effect some plan of co-operative action along the lines suggested.

It is plain, moreover, that the people of New England are recovering from the acute attack of hysteria which recently afflicted them, and are taking a saner view of the situation presented by the abandonment of the Grand Trunk extension project. In the answers of Presidents Charles S. Mellen and Edson J. Chamberlain to indictments charging violation of the Sherman Act, the following reasons were advanced for the appointment of a commission to go to London and take testimony of all the directors of the Grand Trunk Railway who reside there. The enumeration tends to show that current explanations of the abandonment of the Providence and Boston extensions of the Grand Trunk are incorrect:

"(1) That the suspension work on the Palmer-Providence branch was ordered from London in November last, on orders from Alfred W. Smithers, chairman of the board of directors, as a result of a resolution adopted by the directors, because of the impossibility of obtaining money in London, where the Grand Trunk and all its projects have always been financed.

"(2) That the cause of the inability of the Grand Trunk to get money was due to the financial stringency and state of semi-panic resulting from the Balkan war, and the panic conditions prevailing on the Continent.

"(3) That there was no cause for the suspension of the Palmer-Providence project except the conditions resulting from the Balkan War, and the inability of the Grand Trunk to get money.

"(4) That at the same time as the suspension of work on the Palmer-Providence extension, orders were received from London to suspend work throughout the Grand Trunk system, and at that time the Grand Trunk had immediate commitments for improvements in various parts of the system outside New England aggregating $30,000.

"(5) That the spending of money on all these improvements was stopped at the same time and for the same reason.

"(6) That the board of directors did not intend to abandon work on the Palmer-Providence extension, but expected that it would be resumed as soon as the financial conditions made it possible.

"(7) That the provisional New Hampshire Corporation, the formation of which was alleged to have been contemplated by the Grand Trunk Railway Company, to construct a line from White River Junction to Boston, was never considered by the Grand Trunk directors, and that if any act was done by the late President Hayes, looking to the organization of such a corporation, it was done without authority from the board of directors and not ratified by them."

It is well known that the difficulty of obtaining money was the primary reason for the abandonment of construction work. Of the two extensions proposed, the one at Boston is unlikely to be resumed because of the immense cost and doubtful returns of this project. The extension of the Central Vermont to Providence is viewed with favor in London, since this branch, traversing the rich manufacturing district of Southern New England, would bring a great deal of traffic to the Grand Trunk, and Grand Trunk officials claim that as soon as the financial situation improves, construction work on this extension will again be actively prosecuted.

THE INFLUENCE OF THE STEEL TRUST

The first important gain made by the Government in its suit for the dissolution of the United States Steel Corporation was secured in the testimony of former President W. E. Corey of the United States Steel Corporation. Mr. Corey testified to the existence of the steel rail pool among

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E. H. GARY,
President of the United States Steel Corporation.

CONGRESSMAN A. O. STANLEY,
of Kentucky.

Congressman Stanley is the author of the bill designed to deny the right of ownership of railroads to industrial corporations.

American manufacturers as late as 1904, at which prices of rails were kept on an even keel and business was divided. As late as 1910, an understanding had existed with foreign steel manufacturers under which the United States Steel Corporation agreed not to compete with them in their own countries, and foreign manufacturers, in turn, agreed not to seek business in the United States. It was understood, he said, that competition could be restricted through neutral markets to countries which did not produce steel rails. He also testified that a similar international agreement divided up the business of neutral markets in armor plate. Interesting testimony for the purpose of the Government's record, related to the purpose of the famous Gary dinners:

"Following the first Gary dinner were sub-committees appointed?" asked Mr. Dickinson.

"Yes. They were supposed to represent various branches of the steel industry," replied Mr. Corey.

"State whether or not it was the purpose of these sub-committees to reach a general understanding as to steel prices and to bring about the maintenance of them."

"Yes, it was."

"Did it bring about the maintenance of prices?"

"For a temporary period only."

Asked whether prior to the open market of February, 1909, he and the other officers of the company were in favor of meeting market conditions and cutting prices, Mr. Corey said: "Personally I was."

"Did your views prevail?" asked the Government attorney.

"Prices were maintained for a longer period than I thought was advisable," responded the witness. It was with considerable reluctance that Mr. Corey admitted that 'prices were maintained as a result of understandings" reached by members of the sub-committee.

Mr. Corey further testified that the Tennessee Coal and Iron Company was, before its absorption by the United States Steel Corporation in 1907, a competitor with the Steel Corporation in steel rails in the South and Southwest.

Although the officers and directors of the United States Steel Corporation will not concede the possibility of dissolution, standing by their declaration made at the time the Government suit was begun, that the corporation was organized for lawful purposes and has been conducted in a lawful manner, the general opinion in the steel trade inclines toward the belief that the Supreme Court will eventually order a disintegration of the corporation. The Union Pacific-Southern Pacific decision has foreshadowed such a result. That there has been a restriction of competition among the constituent companies of the United States Steel Corporation is not to be doubted, and this, of itself, in the light of the recent railroad decision, seems to be sufficient ground to anticipate a dissolution order. It is known, moreover, that some of the United States Steel Corporation directors have gone so far as to anticipate at least a segregation of the transportation properties from the manufacturing interests of the company.

In this connection the bill introduced by Representative A. O. Stanley, of Kentucky, in the House of Representatives, designed to deny the right of ownership of railroads to an industrial corporation is of interest. Speaking in advocacy of his bill before a House committee, Mr. Stanley said:

"The commodities clause of the interstate commerce law is a joke and a sham; it is open at both ends; it is not worth the paper it is written on.

"What use is there in saying that railroads shall not own coal mines or manufacturing concerns and then letting the mining companies or the manufacturing concerns own the railroads?" he demanded.

Mr. Stanley declared the Interstate Commerce Commission was powerless to prevent rebates from the railroads to the United States Steel Corporation. Members of the committee questioned the statement and asked if the Elkins law did not give full authority to prevent rebating. Mr. Stanley said it did not prevent the devices used by the Steel Corporation, through terminal charges and the like, whereby it made immense profits out of what amounted to railroad rebates. He declared that his bill was designed to back up the commodities clause.

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HARRIMAN LINES DISSOLUTION PLAN APPROVED

The dissolution plan for carrying into effect the orders of the Supreme Court, in reference to the separation of the Union from the Southern Pacific, as set forth in an official statement, is as follows:

"The boards of directors of the Union Pacific Railroad Company and Southern Pacific Company at meetings held to-day approved plans which have been under consideration by special committees for several weeks and which have been worked out with the Attorney General, subject to the approval of the Court, as follows:

"The purchase by the Union Pacific of the entire capital stock of the Central Pacific, consisting of $67,275,500 par value of common and $17,400,000 par value preferred for the sum of $104,189,941—the cost at which it stands upon the books of the Southern Pacific Company; $84,675,500 of this amount was to have been paid in stock of the Southern Pacific Company held by Union Pacific at par, but legal difficulties having been found in the way, the plan has been changed so that payment is to be made as follows, viz.:

"The $126,650,000 par value, being the entire amount of stock of Southern Pacific Company held by the Union Pacific (the entire outstanding issue being $272,672,405—Ed.) is to be offered to the stockholders, common and preferred, of the Union Pacific and stockholders of the Southern Pacific Company other than the Union Pacific and Oregon Short Line, for subscription at 98⅝ per cent and accrued dividend. This offer is to be underwritten and subscribers are to receive the dividend payable April 1, 1913.

"The proceeds of $84,675,500 of this stock less the underwriting commission and expenses is to be paid over to Southern Pacific Company, together with $5,449,000 of the Southern Pacific Company's 4 per cent gold bonds and $14,065,441 in cash.

"The Attorney General of the United States has assented to the essential features of this plan, but it is of course subject to the approval of the District Court in which the Government litigation is pending and also dependent upon the approval by the California Railroad Commission of agreements for certain trackage and running rights in that State. The plan and agreements will be presented to the Court and Commission with the least possible delay."

The $126,650,000 of Southern Pacific stock offered for sale to the stockholders of the two companies, will be underwritten by a syndicate headed by Kuhn, Loeb and Company. The ratio of subscription of the Southern Pacific stock is one share for every four shares of Union common or Union preferred held, and one share for every three shares of Southern. The object of this preference to Southern Pacific stockholders is to further conform to the spirit of the Court's decree to lessen the influence of Union Pacific stockholders in Southern Pacific affairs. It is also a feature of the reorganization plan, that the Union Pacific leased to the Southern Pacific a portion of the Central Pacific line, running from San Francisco northerly to Tehana in Northern California. The Union Pacific has a line paralleling this branch. The plan is not only fair to the stockholders of both companies, but it protects various bondholders of the Union Pacific and its subsidiaries. Of the $126,500,000 Southern Pacific stock, $108,000,000 is deposited as a part of the security for the Oregon Short Line refunding 4's. Of these bonds, however, the Union Pacific has $55,000,000 in its treasury and can secure the release of about $65,000,000 of the pledged Southern Pacific stock by cancelling these bonds. The remainder of the Southern Pacific stock will be released from the mortgage by the substitution of other collateral. The Union Pacific has unpledged in its treasury, $22,000,000 of Baltimore and Ohio stock, $4,000,000 of Chicago and North Western, $22,500,000 of Illinois Central, $9,850,000 of New York Central, and $1,845,000 of St. Paul preferred. The Central Pacific stock, which the Union Pacific is to purchase, is pledged to secure an issue of Southern Pacific bonds, of which $34,218,000 are outstanding. The Union Pacific own $5,449,000 of these bonds and will turn them over to the Southern Pacific in part payment for the Central Pacific stock. The remainder of the bonds will be left outstanding, since the earnings of the Southern Pacific are more than sufficient to pay the interest charges. Attorney General Wickersham issued a statement approving the plan, in the following words:

"The result of the whole transaction will be to create ideal competitive conditions between the Union Pacific and the Southern Pacific for transcontinental business between Eastern points and Portland and San Francisco and to relieve the States of California and Oregon of the monopoly of railroad control which has been the occasion of such widespread public dissatisfaction in the past. The Attorney General feels that the approval and the carrying out of this plan will accomplish results of inestimable benefit to the public, and results far more satisfactory than there was any reason to anticipate could have been secured."

While the financial results of the plan are generally considered to be promising from the standpoint of Union Pacific stockholders, there has been some fear lest the Southern Pacific might suffer. This phase of the dissolution is fully considered in our financial section.

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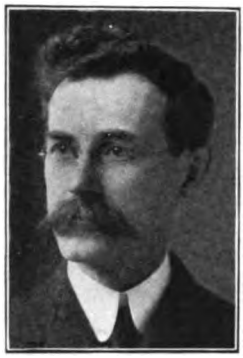

PROF. E. R. JOHNSON, of the University of Pennsylvania.

J. T. JOHNSTON, President, The Traffic Club of Pittsburgh.

GEORGE A. POST, President, Railway Business Association.

ARTHUR BRISBANE, Editor-in-Chief of the Hearst Newspapers.

Four men prominently identified with the recent annual banquet of The Pittsburgh Traffic Club. Mr. Post was toastmaster, Professor Johnson spoke on Panama Canal Tolls, and Mr. Brisbane spoke on the Newspaper View of the Railroad.

ANNUAL BANQUET OF PITTSBURGH TRAFFIC CLUB

One of the most interesting meetings of the Pittsburgh Traffic Club, the organization which has been especially noteworthy for the value of its contributions to the discussion of subjects of interest to shippers and railroads, was the annual dinner held in the banquet hall of the Hotel Shenley on January 30th. The attendance was unusually large. The personnel of the visitors included presidents, traffic managers and high officials of the leading railroads of the country. Three special trains brought most of the out-of-town guests. The toastmaster was Mr. George A. Post, president of the Railway Business Association, who briefly developed the thought that the people, through the multiplication of the avenues and agencies of regulation, have taken complete control of the railroads, and that upon their shoulders must rest the responsibility of the kind and quality of the service which the railroads render. "The people," he said, "regardless of party affiliations, having recorded their will, and having overborne all opposition to subjecting the railroads to rigorous inspection of even minute details of operation, have no longer any misgivings about their power to compel the railroads to do whatever they want them to do." The only ground for solicitude concerning the transportation situation, he concluded, was not whether the people should be protected against the railroads, but whether the railroads should be allowed to earn sufficient revenue to equip themselves to perform the public service which they owe to the United States.

The two leading addresses of the evening were delivered by Prof. Emory R. Johnson, professor of transportation and commerce, of the University of Pennsylvania, special commissioner on Panama traffic and tolls, and Mr. Arthur Brisbane, editor in chief of the Hearst newspapers. Professor Johnson's argument in favor of the repeal of the toll exemption clause of the Panama Canal Act of August 24, 1912, proceeded along familiar lines. He said, in substance, that the exemption of coastwise traffic from the toll charges would be a subsidy to an industry which was already protected by the absolute exclusion of foreign competition, an industry, moreover, which is in an exceedingly flourishing condition. He pointed out that the Government would gain no benefit from the remission of these charges "since the relation of the coastwise steamship companies with each other will be so regulated in their conferences that their charges will tend to be what the traffic will bear, that is, what shippers will pay to have their goods transported by water instead of by rail." In another place, Professor Johnson further developed this thought in the following manner:

"Probably 99 out of every 100 shippers will pay the same rates whether there be tolls or not. Most of the intercoastal traffic will consist of general commodities and package freight handled by the established steamship lines. Bulk cargoes of lumber, coal, ore and heavy steel products will comprise a relatively small share of the total traffic. The rates charged by the several steamship lines will be the same. The charges will be regulated by agreements among the competing companies and will be fixed primarily with reference to what the traffic will bear and only secondarily, if at all, with reference to the cost of the service to the carriers. The several steamship lines will maintain relatively stable schedules of charges

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which will ordinarily be adjusted with reference to the even more stable schedule of commodity and class rates maintained by the transcontinental railroads and their Eastern rail connections. If the regular steamship lines are required to pay Panama tolls, their payments to the Government will be a part of their operating expenses which will thus be increased by the amount of the tolls. If the steamship companies are exempted from the payment of tolls they will thereby receive a subsidy equal to the amount of the tolls not collected by the Government."

Professor Johnson's conclusion was that if we are to give the owners of American ships $20,000,000 during the next ten years, the funds would be better applied to building up lines to Hawaii, China, Japan and the Philippines, to Buenos Ayres and to Valparaiso. Subsidies granted to these lines would improve the position of the United States in foreign commerce, and would result in permanent benefit to our merchants and manufacturers.

Mr. Brisbane's subject was "The Newspaper View of the Railroads." His address was one of the most interesting, if not in all places, the most conclusive which was ever delivered on an occasion of this character. A necessarily inadequate summary of the many points which he made, follows. We give this at length because the speaker addresses each day an audience of 5,000,000 American citizens. The views which he expressed, on this occasion, are the views which the Hearst newspapers are expressing every day. Railroad men do not read the Hearst newspapers, and are, therefore, generally speaking, in ignorance of the doctrines concerning them and their business which are being daily hammered into the American people by Mr. Brisbane and his assistants.

Mr. Brisbane deprecated the disposition of so many so-called statesmen to "bleed" the railroads. He admitted that the greatest minds of to-day are employed in constructive enterprise, and many of them in the railroad industry. "Such men as Cassatt, and Harriman, and Hill are all benefactors of their country, and those benefactors are the greatest and, probably the ablest, men of to-day, not excepting the newspaper editors who criticise them." Mr. Brisbane, however, claimed for the newspapers the privilege of criticism, and further argued that criticism was of the greatest possible benefit to those criticised, since it enabled them to realize their weak places and to remedy their defects. "The biggest man wants the biggest criticism and it would be an extremely bad thing for the United States, and for the railroads, if there was no ability in the Department of Criticism. Don't think a newspaper unfair because it always seems to side against the railroads. When you hear the great lawyer, doesn't he seem to side with the railroad? We newspaper men are the people's lawyer, we are bound to take it for granted that they are right just as your lawyer is bound to take it for granted that you are right."

Passing from this dangerous ground, Mr. Brisbane took up the parcel post, the innovation which he has championed for twenty years, and concerning whose possibilities he expresses the most boundless confidence. "In ten years from now the parcel post business will be so much the most important part of your railroad work that it will engross absolutely the attention of your traffic managers. You have had occasion to complain of postoffice rates under some conditions, but when you come to take a solid car, loaded to capacity, and send it from Chicago to New York for $400, which would be the minimum, and it might be $700, which is the occasional price now, and when you have tens of thousands of such cars, when you have the whole world brought into communication, you will see a work, and a development, and a prosperity, and a spending of money, and an opening up on all sides, that is in very few men's minds to-day."

Mr. Brisbane did not agree with Professor Johnson and his views concerning the Panama Canal. "The railroads hurt themselves," he said, "if they try to stop coastwise ships from going through the canal free. What makes prosperity? Prosperity makes prosperity. The railroads of the country are prosperous because the general trend is towards prosperity. If you increase the possibility of communication between California and Connecticut, or if you make this nation a more closely united nation, if you give opportunity to the man who has his lumber in the Northwest, to put his lumber into the Eastern market, do you think you are going to suffer? Has any improvement in the world ever hurt anything that was honest? There are more sailing vessels on the ocean than there were before the steam vessels were invented. There are many more horses working in the United States than there were before the automobile and the trolley were brought into use."

Mr. Brisbane concluded with a summary of his views on Government ownership which are well known to those who have read his editorials. He does not believe

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that immediate Government ownership of railroads is profitable or desirable, and his reason is of great interest. To take the management of our railway system away from the kind of men who now operate it, and give it to the kind of men who would operate it under our political system would, he claimed, be a calamity. In time, however, he believes the people will have so far developed in intelligence that they will entrust to men like Mr. Rockefeller and Mr. Harriman the conduct of great public enterprises. When the standard of efficiency in public service will not be political success, but intelligent performance of public duty, Mr. Brisbane believes, the people of the United States will be ready to own the railroads and they will purchase them from their private owners.

PHYSICAL VALUATION HEARING

Railroad officials have apparently reached the conclusion that physical valuation of their properties is sure to come at an early date, and they have shown no disposition to resist the passage of the pending physical valuation bill. In fact, Mr. Delano of the Wabash expressed satisfaction at the recent hearing on interstate commerce, that this valuation was to be made. "It will serve to allay the public idea that the railroads are over-valued," he sad. "We are interested chiefly in having a fair valuation made. The Government is going to spend from $2,500,000 to $3,000,000 to accomplish the work, and I think it will cost the railroads of the country about the same amount to furnish the information."

President Loree, of the Delaware and Hudson, objected to the bill because it turned over to the Interstate Commerce Commission the work of making the valuation, and said that a fairer method would be to create a commission of nine, of whom three should be taken from the Interstate Commerce Commission, three from the American Railway Association, and the others as follows: one army engineer, one representative of the Steam Engineering Bureau of the Navy Department, and one Civil Engineer to be designated by the American Society of Civil Engineers.

This suggestion, eminently practical and desirable though it is, and indicating a constitution of the valuation board which would inspire general confidence did not, as might be expected, meet with the approval of the Commission, some of whose members vigorously objected to the proposal. Another demand submitted on behalf of the railroads was that their representatives be permitted free access to reports made by experts conducting the investigation in order that they may be prepared to combat any inaccuracies shown.

State Railroad Ownership in Texas a Failure.

THE State of Texas is having a somewhat crushing experience in Government railroad ownership. Several years ago it constructed a railroad between Palestine and Rusk and also built a short line to give one of its plantations in South Texas a transportation outlet. The latter road has been sold to private interests at a heavy loss from its original cost. The other line, which is known as the State Railroad, has been a financial burden ever since its construction. In a message to the Legislature, Governor Colquitt recommends that the State dispose of the property. In discussing the subject he says:

"The State Railroad is still a Jonah and a heavy expense to the penitentiary management. It has been operated during the last two years at a loss of $50,000. There are $100,000 worth of bonds on it, held by the public school fund; they bear five per cent interest. According to the Railroad Commission, the road cost $577,899.63, and showed a depreciation of $68,828.12 at the time of its valuation. It still runs from Rush to Palestine."

Railway Mail Pay.

THE Rock Island *Employes' Magazine* for February sharply criticises the treatment of the railroads by the Government in the matter of pay for the transportation of mails and calls upon each man as a matter of loyalty to the company to protest to his Congressman and to the Senator from his State against existing conditions. The conditions complained of are as follows:

"1. To add the parcel post to the mails, compelling railroads to furnish transportation and postoffice facilities for it on trains without provision for compensation. The railroads lost also the revenue they got from the express and freight service prior to January 1 which the parcel post displaces.

"2. To require railroads to furnish apartment cars, with the necessary fittings, and provide light, heat, etc., for mail clerks, without compensation for the space they occupy. Railroads are paid for the weight of mail only.

"3. To weigh the mail only once every four years, requiring railroads to carry all increased weight during that four years for nothing. The Government collects postage on all its increase, amounting to millions of dollars. With the parcel post added to the ordinary mail, the four-year weighing and adjustments would be so palpably wrong that Congress should be willing to adjust the matter fairly by weighing the mails for a short average period each year, say 35 days."

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Contemporary Opinion

James J. Hill on Railroads.

THE New York *Commercial* in an issue of recent date discusses an article by James J. Hill, appearing in the New York *Sun* on "The Outlook for American Railroads." Mr. Hill makes the statement that he considers the railroads to be on the brink of catastrophe and that it will take but little to topple them over on the one hand, or to restore their full usefulness on the other. He goes so far as to say that unless railway facilities and terminals are increased, the ever-growing congestion which often paralyzes traffic to-day, will result in an industrial chaos. The *Commercial* in commenting upon this statement says:

"This is a strong way to put it, many will think it exaggerated. But all the facts are such as to give a substantial backing to his vivid presentation: 'I can best compare the railroads to a bottle,' he says, 'increase the size of the bottle without enlarging the neck and more time and work are required to fill and empty it. That's what's the matter with railroads. The volume of the bottle has grown, while the neck has remained the same. The demand for transportation is growing apace with the growth of population and production. In the Pittsburgh district, for example, railroad tonnage grew from 64,000,000 to 152,000,000 in ten years between 1901 and 1911. This growth is characteristic of any large city.'

"He proceeds to say:

"'Now if a manufacturer were confronted with such conditions he would have to do one of two things—refuse business or double his plant. Railroads cannot refuse business. In the first place it is not legal to do so. In the second place it would mean national panic and individual rule. So the only course is for the railroads to enlarge their plants. This means spending millions of dollars. Even existing plants cannot be worked to their limit unless the size of our terminals is increased.'

"The tremendous cost increase of building, operating and maintenance without a proportionate increase in those rates, which after all, on American railways, have been and are the lowest in the world, has made it practically impossible to augment these revenues without which the parallel march in progress is impossible, competently for the great work they have to do. Without the ability to make this accord between expense and revenues, they cannot borrow money to build needed new mileage, nor can they maintain the old mileage on the proper basis. Mr. Hill clearly points out the imperative need that the Interstate Commerce Commission shall give them the opportunity, if investigation shows the alleged need existent, to raise, under the proper supervision, the rates both freight and passenger to a schedule basis, which shall equalize the situation. Men of business sense will justify such a concession. It is to their own interest that, the cause being definitely posited, the difficulty shall be removed."

The Question of Railway Credit.

THE *North American Review* in its February number publishes a most excellent article by Mr. Franklin Escher on "The Delicate Question of Railway Credit." Mr. Escher asserts that the present unwillingness on the part of investors to buy railway bonds is due to the attitude assumed by the Interstate Commerce Commission during the past two years, who, in spite of the heavy increase in railway operating expenses caused by the higher cost of material and labor, have assumed an uncompromising attitude towards an increase in transportation charges.

He points out, that with one big railroad man after another coming out openly with statements that unless there is a change in the Commission's attitude a number of important properties will find themselves in difficulty, it is hardly to be wondered at that investors are becoming chary about putting their money into railway securities. While it is realized that the railway men who have been making these strong statements are, so to speak, interested parties, Mr. Escher asserts that "by the very frankness with which such men as President Ripley, of the Atchison; President Brown, of the New York Central, and President Finley, of the Southern, have been stating their case, they have convinced a good many thinking people that this is no mere attempt on the part of the transportation interests to get more money out of the shippers, but an honest attempt to preserve the integrity of the industry in which they are engaged.

"The proportion of the public, however, which has been reached by the fair and frank statements of Messrs. Ripley, Brown and Finley, and the others is almost inconsiderable in comparison with the very large number of persons who believe that the railroads are making plenty of money and that their rates, if anything, should be reduced and not advanced."

The still prevailing popular but erroneous beliefs that capitalization effects rates and that lower rates mean lower commodity prices, are given as the two horns of the dilemma upon which the railroads are at present impaled. "Only by getting the facts before the public, so that it may see how utterly unlikely such interference with freight rates is to bring about lower prices, can public sentiment toward the railways be dissuaded from its pursuit of this *ignis fatuus* and brought back to solid ground.

"Before anything in that line can be accomplished two great misconceptions must be corrected. The first is that freight rates have anything to do with capitalization—that is to say, that what a railroad charges for carrying freight should in any way be influenced by the value of the railroad's property. The second is that anything can be gained for the shipper or the general public by limiting railway profits—that is to say, by passing laws that a railroad shall be allowed to earn only so-and-so much on the amount of money invested in the property.

* * * * * * *

"What is the remedy? How can confidence in railway securities be restored? In one way and in one way only: by putting before the public the facts in the case and relying upon that to bring about correction of the prevalent misapprehension concerning freight rates. Let the public once see the true position the railways are in and there will be a speedy end to the talk about 'valuation' and legal limitation of profits. Very quickly then will follow the restoration of railway securities to that high degree of investment favor they enjoyed but a very few years ago."

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Necessity for Higher Rates.

THERE appears a growing tendency on the part of business men to recognize the necessity for some readjustment of transportation charges to a higher level. The press of the country is printing daily, expressions of opinion from prominent men advocating some such readjustment, and it has become a well recognized fact that railway investments under existing conditions are proving unattractive to investors. In commenting on this phase of the railway problem, F. J. Lisman, of New York, recently said:

"We have now arrived at a period when the investment public here and abroad, has read so much about the anti-railroad legislation and the unprofitableness of railroads, and has had unsatisfactory experience with investments in railroad securities, it does not care to purchase any more railroad securities, especially those of enterprises which have not been tested by time. The natural consequence is there is less new mileage being constructed; the weaker companies cannot get any money, therefore cannot improve their railroads, and under the Sherman anti-trust law the stronger railroad companies cannot even avail of the opportunities of buying the weaker ones at a sacrifice, because this would be construed as preventing proper competition.

"The public as a whole is really not down on the railroads, but the politicians have stirred them up to think it is. As a consequence the service is not being improved in certain districts as it ought to be, nor is the country being opened up at the same rate as it was ten years ago. Unless the tactics are changed, conditions will get much worse.

"President B. A. Worthington, of the Chicago and Alton, says:

"'Bearing in mind that the railroads are face to face with a period of thorough reconstruction which will involve enormous expenditures, the question is: Where will we be able to get the money? We are denied the right to increase our rates for transportation; we are hampered and harassed at every turn and corner in our earnest struggle to enforce economies or to create additional sources of revenue, we are denied privileges which would tend to produce less operating costs; taxes, wages and the prices of material have advanced arm in arm in rapid strides in recent years. As these factors are inflexible, there is little likelihood of relief from any of these demands in the immediate future.

"'These are the actual exigencies which the railroads face to-day—the economic problems which they must solve to be able to respond to the commands of commerce; and unless we can find a way and means to adjust these conflicting conditions and at once, we soon shall reach, if indeed we have not already passed, the glory of our youthful vigor as a commercial nation; and, this is the real railroad question of to-day. In preparing our answer, we must not fail to remember that financial credit is a child of emotion, fitful and fanciful, to be coaxed by the hope of reward which must not be withheld; if once betrayed, we as a nation may as well prepare for the call that summoned Rome, Greece, Egypt, Babylonia—all nations that wilfully and deliberately violated a sacred code of honor, the law of progress, the evolution of mankind.'"

State Railroad Ownership.

EVIDENCE is constantly accumulating to show that Government ownership of railroads in whatever countries tried has met with but indifferent success. In fact in a number of instances it has placed a heavy additional tax upon the people with no improvement of facilities. The following editorial from the *Financial America* throws some interesting light upon the results obtained through the nationalization of the Western Railway of France:

"Those in this country who advocate State railroad ownership will derive little comfort from the published result of the nationalization of the Western Railway in France. Since its nationalization in 1909 it has cost the taxpayers on an average $12,000,000 each year to make good a deficit. In 1909 the deficit was $7,750,000; in 1910, $11,700,000; in 1911, $14,000,000; in 1912, $16,000,000; and, for 1913, the budget estimates a tax upon the people of $18,000,000. When the line was operated by the company the cost of the taxpayers never exceeded in any one year $5,400,000, which was paid under a State guarantee of interest. The press of Paris regards this result as a crying scandal and protests indignantly against the unbusinesslike and reckless management of the Western Railway under State operation.

"'No matter what the States takes up,' says *Le Temps*, 'the management is characterized by disgraceful waste, if not by pillage.' In substantiating this statement our contemporary refers to the rebuilding of the national printing works, which was to cost $600,000, but required an actual expenditure of $2,000,000 of public moneys and consumed eleven years to complete. It also accuses the Government of waste and extravagance in reference to ammunition and matches, two industries operated by the State. Another important point in connection with this State-owned railroad is its neglect and indifference in the manner of drafting its annual report. While private railroad companies in France issue reports and make public accounting of their receipts and expenses shortly after the close of each business year, the directors of the Western Railway issue their report whenever they please, and upon one occasion delayed the publication thirteen months. Apparently, the more we investigate municipalization and nationalization schemes the less are we attracted to them."

Attitude of the Public Towards Large Corporations.

THE *Bache Review*, a summary of the general financial and business situation issued by J. S. Bache and Company, of New York, discusses in a recent issue the attitude of the American public towards large corporations. It says in part:

"There is a settled hostility in the minds of a vast number of people in America against big corporations and interests. This has been brought about by the overbearing treatment inflicted upon the public by railroads and public utility companies in the years gone by. In these companies, and in some of those handling commodities which the people were compelled to buy anyway, there was no necessity for inducing custom by courteous treatment. The companies adopted the fatal policy of indifferent or domineering dealing with the public. This is something that an American will

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not stand. He is perfectly willing to pay good prices for good service, but he resents being snubbed. His resentment, smouldering at first, has, in the course of years, been fanned by newspapers and politicians into stubborn opposition and enmity and finally into open warfare. The attitude of much of the public service has been changed, many abuses have been corrected, but this is not sufficient. Above all, just treatment must be accorded in every instance, but the big men and their subordinates all along the line must go to the people themselves and explain and promote friendship by hand-to-hand acquaintance. The American public is just, and has good judgment and brains, but it must be made to understand through personal contact. The winning of favor must be undertaken with as much courteous solicitude and constant activity as great and small concerns use in getting customers and new business, or the politician in securing votes. A campaign of country-wide operation must be undertaken.

"In no other way, it seems to us, can this tide of popular disapproval and resentment be stayed; a tide which it is dangerous to disregard, and which, unchecked, may sweep the great machinery of business onto the rocks."

In another issue it calls attention to the following warning recently issued by Professor Hadley, of Yale:

"I am afraid that neither the public nor the Government is awake to the real state of things. In our endeavors to control corporations we, too often try to lessen their efficiency instead of increasing it. We are appalled by one railroad accident, and we suggest that every engine should have two engineers instead of one. A fast train runs off the track, and a Government officer suggests that people ought not to want to travel so fast.

"If these views prevail the days of America's greatness are done. A people that believes in divided responsibility and waste of time has no future.

"What is to be done in the face of this state of things? In the first place we must continue to reward the efficient man. The fact that competition will no longer do this automatically must make us all, as part of our public duty, lend a hand to the men who are getting things done. We shall deal with the problems of corporate regulation and with the abuses of corporate management more effectively if we are willing to appreciate efficient service."

Misdating Bills of Lading.

THE following admonition by the *Northwestern Miller* to the milling trade might well have the attention of other shipping interests which are indifferent to the new order of business and still seek to procure advatages at the risk of being charged with criminal offense:

"It seems incredible, but it is actually true that, despite all that has been said on the subject, the frequent exposures with their costly results in settlements and damages, the full and clear exposition of the dangers and penalties attending such acts, there are millers who still endeavor to induce the representatives of the carriers to misdate shipping documents and who even attempt coercion and threaten retaliation if their desires are not complied with.

"It would seem that such inciters to unlawfulness are peculiarly dense of comprehension or else they will never be able to understand the enormity of the offense they propose to commit, until they are detected and rigorously punished.

"Time and again the *Northwestern Miller* has warned the shipping public against this practice, once not uncommon but now as rare as any other criminal proceeding. Still some millers persist in believing that to misdate a bill of lading is merely a business peccadillo of no particular significance or consequence.

"They will not understand that times have changed and there is no longer the latitude in such matters there used to be a few years ago. To misdate a bill of lading is now a penal offense, and if discovered will be severely punished. To ask the agent of a carrier as an 'accommodation' to utter a false shipping document is exactly the same in principle as to request him to forge a signature or to commit larceny. It is distinctly criminal, and subject to punishment as such.

"Moreover, if, in order to hold business, he should be such an utter fool as to commit this crime, and if it should be detected, as it most assuredly would, he will not be alone in suffering punishment. The man who knowingly procured the false document will receive the same penalty as the agent by whom it was signed.

"It seems strange that some millers cannot or will not understand the present status of the misdated bill of lading. Always morally culpable, it is now specifically and legally criminal. The miller who asks it is inviting the agent to perform a distinctly illegal act. He who attempts to coerce another into criminal action is equally guilty. It is precisely the same as if the miller demanded as the price of his further business that the agent should forge a check or steal money. It is a gross insult to a reputable man to suggest such a thing, and the miller or the miller's representative who does it commits an indefensible and contemptible act.

"The *Northwestern Miller* is heartily weary of reiterating the warnings against misdating bills of lading or attempting to do so. Enough ought to be enough. It only hopes that the next shipper who tries this dishonest game will be detected, or exposed, fined and sent to jail, where he certainly belongs."

Arbitration Under the Erdman Act.

NEWSPAPER editors in various sections of the country are emphatic in their praise of the Eastern railway managers' decision to arbitrate their difficulties with their firemen under the provisions of the Erdman Act. A number of editors apparently fully appreciate the soundness of the carriers' contention that such a law is inadequate to handle a situation of this kind properly, owing to the fact that the arbitrators are but three, with only one independent, but they nevertheless heartily endorse the evidence of public spirit which has influenced the managers to accept arbitration under the only legal device now available. The following brief editorial from the Baltimore *Sun* is indicative of the attitude towards this question of a number of the leading journals:

"That the railroads have agreed to arbitrate their differences with the firemen by the Erdman Act method is gratifying. There was much force in their contention that an arbitration board of

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three men, two of whom are confessedly partisans, could not be expected to reach as just a decision as one of five or seven members, but the Erdman Act is the law of the land, and until it is changed no party to an industrial dispute that refuses to abide by it can be in a wholly favorable position before the public.

"Congress should take up the question of amending this Act, to the end that compulsory arbitration may be provided, if possible, and if not, that some act similar to that in force in Canada may be put in operation here."

Defrauding the Railroads.

WITH our legislative halls ringing with the eloquent appeals of our political reformers, with public officials ever on the alert to elevate business morality, and with business itself being lifted to a higher plane of integrity and fair dealing, it seems incredible that at the very fountain head of all this uplifting activity, we should find one of the Nation's public departments compelling the railroads to perform a great and expensive service for which no compensation has been provided. This, however, is exactly what has occurred under the operation of the new parcel post law. Millions of packages are now being transported by the carriers at an enormous aggregate expense and no provision has so far been made to compensate the railroads for this additional service. Furthermore, the understanding the Congress will probably sooner or later provide some form of compensation for this service does not in the least mitigate the glaring unfairness with which the railroads have been dealt with. On the contrary, it shows the deplorable conditions which may develop under a control or regulation which is not governed or influenced by financial responsibility.

In the New York *Commercial* of February 18th, the situation is summed up in the following manner:

"The *Philadelphia Inquirer* calls attention to a point worthy of consideration. That is the increased cost to the railroads in distributing the parcel post matter from one end of the country to the other. The general proposition is put in this fashion:

" 'By the instituting of the parcel post mail there has occurred an enormous increase in the weight of the mails carried by the railways of the country, an increase not contemplated nor allowed for at the time of the last weighing of the mails by the Government for the purpose of basing the mail pay of the various railways in the United States.

" 'The railways are carrying this increased mail promptly, securely, speedily and faithfully, and as yet no provision has been made for paying the railways for this increased service, so well performed, and which is costing them large additional expenditures in the handling, the transportation and through additional facilities necessary in many ways.'

"Just what the increase is in the weight of mail carried is not easy at present to estimate. It must necessarily be enormous, if the reports that come from a thousand sources as to the large avail of the new privileges are half true. Probably a 25 per cent surmise would understate the facts. It is a service which is certain to increase vastly. In course of time no doubt any injustice in this respect relative to increased payment will be rectified; but in the meanwhile the carriers, it is alleged, are doing their work faithfully at a loss on an old rating, continuing without reference to increase of obligation and expense on the part of the railroads."

Transportation of Perishable Freight.

IN its railway and industrial section for February, the *Financial Chronicle* calls attention to the proposed legislation in several States affecting the marketing of fruit, vegetables, meats and other food products which makes the question of the transportation of perishable freight a particularly live one. Commenting on recent developments along these lines the *Chronicle* says:

"A general spirit of unrest has been fanned by the difficulties which an ordinary housekeeper finds confronting him. Remedies are supported by ill considered laws framed as the result of commissions that are often times actuated by political motives. The effect of the summary laws proposed for universal minute inspection and severe arguments penalizing as a body, market men and carriers alike, may defeat the end in view.

* * * * * * *

"Reforming legislators, before drafting revolutionary measures, would do well to make themselves thoroughly acquainted with the steady progress towards co-operation now being made by the representative organizations of carriers and shippers."

Attention is called to an address recently delivered by E. D. Levy, assistant general manager of the St. Louis and San Francisco Railway, before the Western Fruit Jobbers' Association, in which the question of the transportation of perishable products is discussed in detail:

"The plan outlined by Mr. Levy for the co-operation of carriers and fruit jobbers, which would also necessarily benefit producers and consumers, deserves consideration in every State of the Union. It is that local organizations of fruit or other merchandise jobbers should appoint transportation committees to work out with the carriers the problems of distribution of perishable freight."

Mr. Levy states that the earning per gross ton per mile are less on fruits and vegetables than on corn, flour, coal, iron, cement, brick, lime and lumber. He also asserts "that there is more to be gained by arrangements between the carriers and the shippers for the adoption of uniform schedules and regular delivery than by urging them to make excessively fast schedules. On a reasonable schedule, railroads can handle the perishable freight with some degree of profit, but this margin quickly vanishes when the size of trains has to be reduced and greater expenses are incurred in order to obtain a proportionately faster speed.

"Taking a broad view, Mr. Levy suggests that any laxity which may be found on the part of either carriers or shippers in the transportation of perishable freight may be removed by co-operation along intelligent lines, to improve the methods of the transportation and distribution of less-than-car-load perishable freight. This may be brought to as good a state of regular, dependable service as the transportation of the United States mail, even if not as fast. But full satisfaction will only be possible by the willing co-operation of the shippers, and especially in giving the freight proper protection while in transit to and from the railway terminals."

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Confiscated to the Public

By George Dana Mumford,

Of the New York Bar.

A YEAR or so ago, Mr. Brandeis told a public, eager to believe the worst, that the railroads of this country could save a million dollars a day, if certain new practices of shop efficiency, suitable to certain industrial plants but not proved to be adaptable to railway operation as a whole, were introduced.

Although the Commerce Commission brushed the suggestion aside as without any real weight of evidence to support it, the effect on the great mass of the public was to create an impression that railway management is inefficient.

Reduction in Operating Costs.

Nobody rose up to point out what the railways had actually done in the way of reducing operating costs. No railway Daniel raised a voice to say that the actual achievements of the railroads in the past fifteen years in reducing the unit cost of transportation amount to-day to over five hundred million dollars a year, or One and One-Half Million Dollars a Day! Nobody rose up to point out that the public and not the railways had reaped the entire benefit of all this.

For it is a demonstrable fact that the public has not only appropriated all the savings effected by the railways through increased operating efficiency for the last fifteen years, but the public does not even know that it has done so.

There is a time honored story that serves to illustrate the situation: "General Grant," cried a boy, rushing up to the Commander of the Federal Forces and pointing to a hill where an active battle seemed to be raging, "Yon hill must be took." "Boy," said General Grant, "Yon hill is took."

Strangely enough the proofs that the hill had been taken were lacking.

Financial writers have been talking for years about the increased operating efficiency of our railroads, due to improvements in roadbed and rolling stock, to the reduction of grades and elimination of curves, to heavier motive power and bigger freight cars, to increased carload and trainload, to installation of double tracks and passing tracks, and yet nobody has been able to tell us what were the savings due to all of these factors of increased railroad operating efficiency.

No one has come forward to tell us what was the actual saving in unit-cost,—the cost of carrying a ton of freight a mile, or a thousand tons of freight a mile, or a passenger a mile—due to these factors in increased operating efficiency.

Effect of Increased Expenditures.

Every railroad man knows that as the freight density of his road increases, the cost of handling freight should materially decrease. Every railroad man knows that by increasing his freight trainload fifty per cent., he should materially reduce his 'cost of movement.' But when he comes to go over the actual operating results for the year and compares his unit-costs with the unit-costs of say ten years ago, he finds that his present costs, instead of being lower are actually higher—five or ten per cent. higher—than they were ten years ago. All his efforts for greater efficiency have apparently gone for nothing. He is like a man rowing against the tide. In spite of violent exertions at the oars, he finds himself being steadily carried out to sea.

Now the tide against which the railways have been rowing and against which all their efforts for higher efficiency and all their millions spent to secure greater facilities have been of no avail, is the tide of Higher Prices.

If you imagine our rower rowing against a tide running six miles an hour, to prevent it from carrying him out to sea, and after rowing steadily for six hours finding that in spite of his efforts he has been carried six miles out to sea, you wouldn't claim that his being carried six miles out to sea was proof that he didn't know how to row. Instead, you would try to figure out how far out to sea he would have been carried if he hadn't rowed against the tide!

If by not rowing at all he would have been carried thirty-six miles out to sea, and by rowing to the limit of endurance he was still carried six miles out, you would realize that our rower actually rowed thirty miles, the difference between where he would have been if he hadn't rowed and where he actually was. You wouldn't say that his unpleasant plight was due to his own inefficiency. Put mathematically, the sum that he had been set to do was: $-36+30=-6$; and you would say that that was a pretty discouraging sum to be set to do, whether in rowboats or railways.

Now that is exactly the sum that the railways in this country have had to work out since 1896.

If we hadn't known how fast the tide was running out, we could not have known the result attained by rowing; but knowing that, we know exactly the result of our rower's effort translated into miles rowed.

But the railroads have been in the position of not knowing how fast the tide of higher prices was running against them, and therefore, were unable to tell what the actual results of their increased operating efficiency were in terms of the percentage of saving in unit cost.

All they knew was that instead of increased volume of traffic and increased operating efficiency causing any visible or tangible reduction in unit operating cost, their unit cost had increased some six per cent. That instead of increased volume being carried at a lesser unit cost, it is actually carried at a greater unit cost; —that operating expenses are increasing out of proportion to gross earnings. The more efficient a railway manager is, the more exasperated he becomes over the apparently fruitless nature of his struggle to stem the tide.

Railway accounts are so complex and operat-

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ing results so variable,—dependent upon changes in volume of traffic and trainload on the one side, and on fluctuations in prices and wages on the other,—that it has seemed almost impossible to figure out what is the precise increase in the unit cost of transportation due solely to higher prices, and what on the other hand is the offsetting saving in unit cost due to the various factors of increased operating efficiency.

We know, however, that the actual results that finally emerge in the operating account are not simple figures at all, but are the final results of the battle between two opposing forces. Higher prices tend to increase costs. Higher efficiency tends to lower them. The final cost is the resultant of these two forces. If, comparing the average results of two three-year periods, ten years apart, as say 1898-1900, and 1908-10, we find that the unit cost of transportation in spite of a 57 per cent. greater volume of traffic and a 48 per cent. heavier trainload, increased 4 per cent., we know at least that the unit operating cost has increased on account of higher prices 4 per cent. more than the higher operating efficiency has been able to offset it. This 4 per cent. increase in unit cost is no more a reflection on the efficiency of railroad management—as the efficiency engineers would have us believe—nor a proper index of the actual increase in operating cost due to higher prices, than the six miles the rower was carried out to sea by the tide was the measure of his efficiency in rowing, or an index of the actual speed of the tide.

Improved Operating Efficiency.

In order to get an idea of the actual results over that ten-year period, in order to take account of stock and see what improved operating efficiency has really done for the public, we must find some way either of measuring the different factors of increased efficiency in terms of reduction in unit cost, or of ascertaining what the increase in unit cost over those ten years have been, due to higher wages of labor, higher prices of material and higher standards of operation.

Wages advanced about twenty-five (25%) per cent. during that period, and prices of commodities about fifty (50%) per cent., but they did not advance uniformly either together or separately.

Instead of going up steadily, two or three per cent. a year, they may have advanced seven per cent. in one year, and declined two per cent. in another. And it is due to these fluctuations in prices of materials that it is so difficult to estimate the exact effect on the operating account per traffic unit of the increase in prices.

Where it is a gradual advance, it is almost unnoticed at the time. An increase in prices of materials of three per cent. in any year does not seem very much, but an increase of three per cent. a year for fifteen years means an increase of 45 per cent.

It is only by comparing two periods, ten or fifteen years apart, that we are able to realize the extent of the increase.

Now the real increase in operating cost per traffic unit, due to higher prices, taking the combined operations of all the railways of the United States for the ten-year period, comparing the three-year average of 1898-1900 with 1908-1910, was between 28 per cent. and 30 per cent., say 29 per cent.

But the actual result of these combined operations in 1908-1910 showed an increase in unit cost over 1898-1900 of only about 4 per cent. So the sum set us to do is a perfectly simple one. Unit operating costs would have advanced 29 per cent. in the ten years but for the extraordinary efforts of the railroads to increase their traffic capacity, and their operating efficiency. Unit costs in the face of these efforts actually advanced 4 per cent. Therefore, increased operating efficiency on the part of the railroads during the same period resulted in an actual saving or reduction in unit costs of 25 per cent. But this 25 per cent. in unit cost never saw the light of day. It was progressively absorbed and more than offset by the 29 per cent. increase in unit cost due to higher prices. It is the old sum of adding $+25$ to -29. The result is only -4, $(-29+25=-4)$.

So that, as in the case of the rower we had to figure how far he would have been carried out to sea if he hadn't rowed against the tide, in order to ascertain the actual result of his rowing, so with the railroads we have had to figure how much unit costs would have increased if the railroads had not so vastly increased their operating efficiency in order to ascertain what was the real extent of the saving of this increased efficiency.

This 25 per cent. reduction in unit operating cost in the ten years is an actual positive result of all the factors of increased efficiency. It is no less actual because it is not visible to the naked eye in railway operating accounts. If this saving of 25 per cent. in unit operating costs had not actually taken place in dollars and cents, due to improved operating efficiency, the average cost per traffic unit,—per ton per mile, or per 1,000 ton miles, or per passenger per mile,—would have increased in those ten years twenty-nine per cent. (29%) instead of four per cent.

Low Level of Present Rates.

I have taken the trouble to figure out what would have been the cost of railway operations in 1896 if the railroads had then operated under the wages and prices existing to-day. The result is an interesting commentary on the question of the reasonableness or unreasonableness of the present level of railway rates, which is slightly lower than the level of 1896.

If the volume of traffic of 1896 had been carried by the railroads at the level of wages and prices of to-day, the cost of handling the traffic (including fixed charges and taxes) would have been seventeen per cent. more than the total passenger and freight receipts. The railroads of the country, treated as one great system, would have had to pay out $117 for every $100 they took in!

Between 1896 and 1910 the railroads of the country succeeded in effecting by increased efficiency an average reduction in ton mile cost of 32 per cent. as against an average increase in ton mile cost due to the higher level of prices of 29 per cent.

Since 1910, the increase in unit cost due to higher prices has increased to 37 per cent., and is still increasing, while 1910 seems to have been

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the high water mark of railway operating efficiency.

The increase in operating cost due to higher wages and prices has caused a serious skimping in maintenance charges, the effect of which is to reduce the general operating ratio about one per cent. below what it should normally be, if proper maintenance charges were made.

The average operating ratio of all the railroads of the country for the year 1912 is 69.1 per cent. The average operating ratio for 1910 was 66.29 per cent. But the difference between these two operating ratios does not accurately reflect the increase in operating cost to the railways in the past two years due to higher prices, for the reason that the 1910 ratio is too high, due to excess maintenance charges, and the 1912 ratio is too low, due to too small maintenance.

In 1910, a year of large traffic, the railroads made up for skimping maintenance in 1908 and 1909 by increasing maintenance charges over normal to an amount that increased the operating ratio by over one per cent. The operating ratio of 1910, on the maintenance basis of 1908-1909, would have been only 63 per cent. instead of 66.29 per cent.

Effect of Higher Wages and Prices.

In 1912, the railroads being under the ban of the Commission in regard to rates and being compelled to pay higher wages and prices for materials, again skimped normal maintenance charges by one per cent. So that allowing for a proper maintenance charge in each case, the true operation ratio in 1910 was 65 per cent. instead of 66 per cent., and in 1912 was 70 per cent. instead of 69 per cent

Now a difference between 65 per cent. and 70 per cent. in the operating ratio means an increase of 7¾ per cent., practically eight per cent. in unit costs,—in the ton mile cost and the passenger mile cost. So that ton mile costs have actually increased eight per cent. since 1910!

And they are still rising! The consensus of opinion of the world's economists is that general prices will continue to rise about 2 per cent. a year for the next fifteen years. And if general prices continue to rise, wages must continue to rise, and railroad unit operating costs must continue to rise!

As against this general increase in unit operating costs imposed upon the railroads by economic forces entirely outside of their control, the different railway systems have made more or less successful headway through increasing operating efficiency, and increasing their traffic facilities. But the amount of the total savings of increased operating efficiency of each of them has also not been entirely under their individual control, but has rather been determined for them by the accident of location, affecting volume of traffic, as well as by the character of that traffic determining the possibility of effecting further economies, through larger trainload.

Tapping the great Pittsburg manufacturing district, the foresight of Mr. Cassatt, and the unlimited financial credit of the Pennsylvania system, enabled it so to expand its traffic capacity that it was able to increase its freight density from 2,840,000 to 5,139,000 tons per mile of road, or an increase of 81 per cent. By increasing its own intensive efficiency it increased its average freight trainload from 240 tons to 649 tons, or an increase of 170 per cent.

From these factors of increased operating efficiency the Pennsylvania should have realized a reduction in unit costs of 32 per cent. But as a matter of fact, it did not effect a reduction of more than 27 per cent.

As a result, the actual cost per traffic unit increased, in the fifteen years between 1896 and 1910, about two per cent. But this advance was due solely to the higher general level of prices, and was, in the face of an actual average reduction in cost per traffic unit, effected by the Pennsylvania through increased intensive operating efficiency, of 27 per cent.

The fact that the Pennsylvania failed to achieve the full saving that it should have been entitled to, was due not to lack of operating efficiency for the efficiency was there, but to something that should give us all pause in considering the pressing problem of the present plight of the railroads.

Limit Reached in Freight Density.

The Pennsylvania failed to harvest the full fruits of its increased operating efficiency, because its enormous freight density had reached the point of saturation, had passed the point of highest economic traffic capacity. Every railroad, whether single-track, double-track, four-track, or six-track, has this maximum point of economic traffic capacity. Pass that point and the cost of carrying additional freight begins to increase out of all proportion to its original cost. Under extreme conditions, as on the Wabash and Missouri Pacific, the operating ratio may run up to over 80 per cent. of the gross receipts, or even higher. But here is the premier railroad system in the country,—which during the past fifteen years has poured hundreds of millions of new capital and over two hundred millions of surplus earnings into increasing its traffic facilities,—showing that in spite of this enormous outlay, it has actually reached and passed the point of economic traffic capacity.

Requirements of the Future.

And if the greatest railroad system in the country, in spite of doubling its capital investment, has reached its limit of economic traffic capacity, how about all the other systems that have not begun to spend as much proportionately as the Pennsylvania in increasing their facilities? Does the public know how close to this limit they are today?

If the traffic of the country as a whole increases 80 per cent. in the next ten years as it did in the decade from 1900 to 1910, and did in the previous decade from 1890 to 1900, how are the railroads going to handle the business of the future without billions of new money poured into double tracks and four tracks and six tracks and terminals and rolling stock? And how are the railroads going to get these billions without first regaining the confidence of the small investor? And how can the railroad industry regain the confidence of the small investor, as a profitable field for investment, if its rates are held down and its costs are forced up, and its net return is less than that obtained in any other industry?

With all the savings of increased operating

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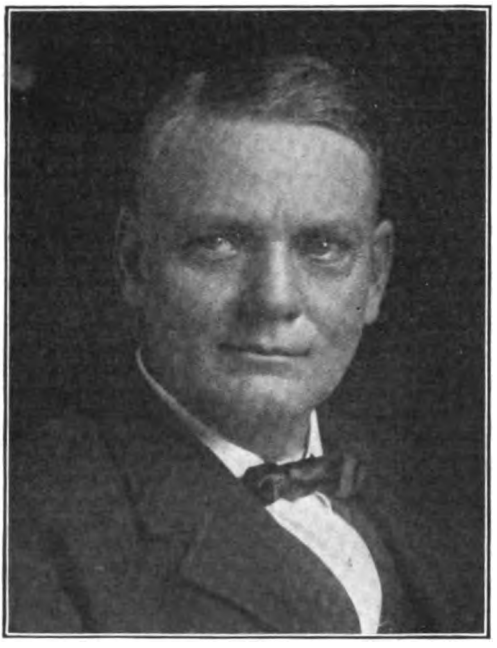
efficiency of the past fifteen years confiscated to the public as soon as made, with continuous rising prices forcing costs up and improvident Government regulation holding rates down, with the existing railroad plant now loaded to maximum capacity, with railroad credit so impaired that the strongest roads must pay fifty per cent. higher interest for new capital—and yet with the growing business of the country imperatively requiring that railroad facilities shall be doubled within ten years, it is not the railroad industry alone, but the business of the country itself that will soon find itself between the Devil and the Deep Sea.

It is unbelievable that this condition should be allowed to continue,—that the American business man and laboring man should not awake to the fact that when we strangle railroad expansion with higher costs and lower rates, we are strangling the future business of the country.

Conservation of Human Life in Railway Operations

By RALPH C. RICHARDS,

CHAIRMAN, CENTRAL SAFETY COMMITTEE, CHICAGO AND NORTH WESTERN RAILWAY.



RALPH C. RICHARDS.

THE "Safety First" movement on railroads originated on the Chicago and North Western Railway and it stands for the conservation of human life. And it was made necessary because we had learned from sad experience that we can not make men careful by passing laws, for that has been tried and failed, or by overlooking the human element, the most important thing not only in railroading, but in all business, as, regardless of all such laws, the deaths and injuries kept on increasing until finally we got our eyes open to the fact that the laws could not do what it was supposed they could,—that is, prevent accidents happening. So it was decided that something else must be done to prevent this awful waste of human life and stop the making of cripples, widows and orphans, as neither the workingman, the employer or the public could longer stand any such drain.

How badly some action was needed is shown by the September, 1908, Bulletin, issued by the Commissioner of Labor of the United States, which, on page 458, shows 35,000 workingmen killed in industrial accidents each year, or *one every fifteen minutes* of every day in the year, and the injury of two million every year, or *one every sixteen seconds of every minute and hour* and day in the year, and, contrary to the general understanding, only ONE-TENTH of the deaths and ONE-SIXTEENTH of the injuries were railroad men, the other NINE-TENTHS and FIFTEEN-SIXTEENTHS being workmen employed in the other industries of the country, but because the railroads were the only ones who reported their accidents to one central authority where they could be tabulated and published, they were the only employers of labor who have been generally criticised because so many of their workmen were killed and injured.

If the question were put to any assemblage of men as to what was their most precious and valuable possession next to their wives and children, I think they would vote unanimously that it was their lives and their limbs, not their bank accounts, property, their jobs or their credit, and yet our lives and limbs are the very possession of which we railroad men, during the last fifty years, have been the most careless and about which we have taken the most chances.

REASONS FOR AMERICAN RAILWAY ACCIDENTS.

The railroad list of casualties, as shown by the last report of the Interstate Commerce Commission for the year ending June 30th, 1912, was 3,635 railroad men killed and 142,442 injured, or nearly ten per cent of all the men employed on the roads, of which 3,235 were killed and 50,097 injured in operating accidents and 400 killed and 92,363 injured in industrial accidents, such as accidents in shops, roundhouses, offices, stations and repair yards.

Some of the reasons we have so many more accidents in this country than they do abroad are:

That we are a nation of chance takers. We take a chance on anything from a horse race up or down.

Because our lines are so much longer than those abroad that it is much more difficult to exercise the same supervision over the men and the property that they are able to do in smaller countries;

Because so many of our men, especially in the track, shop and roundhouse service, are foreigners and cannot understand or speak our language, making it exceedingly difficult

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to instruct them how to do the work safely and properly;

Because we had so many accidents, we necessarily had to inject into the force so many new and inexperienced men who increased the risk and decreased the efficiency.

Conditions on the North Western.

The management of the North Western Railway, being both farsighted and humane, recognized, perhaps earlier than most other employers of labor, the great suffering that was caused by avoidable accidents resulting in death and injury to its men, passengers and others, and because of that, as well as for the further reason that, during the year ending June 30th, 1910, our accidents causing

Death to employes increased	37%
Death to passengers increased	38%
Death to outsiders increased	19%
Injuries to employes increased	38%
Injuries to passengers increased	27%
Injuries to outsiders increased	12%

determined about two years ago to inaugurate a movement to reduce accidents, both as a matter of humanity and for the purpose of increasing the efficiency of its organization, as every time a capable, experienced employe was killed or injured, it not only brought suffering and sorrow to himself or family, but necessitated the employing of a new man in his place, thereby increasing the risk to other men in the service and at the same time decreasing the efficiency of the organization, frequently very seriously.

For example: Take the case of the foreman of a switch engine coming over from Wood street to 40th street. On the way over he met another engine which was stalled with a train. At the request of the crew of the stalled train he coupled on his engine and pulled them over to 40th street. When he got there he uncoupled his engine and sent it ahead, then started to walk over to it. The engine which he had assisted over from Wood street started up without ringing the bell, ran over and killed him. The rules require that bells shall be rung when an engine is about to move and while switching on the elevated tracks. If that had been done in this case, a man's life would probably have been saved, and a widow and three or four children would not be left in mourning, destitution and misery. And think how much less time it would have taken to start that bell than it did to make a report of the accident, and how much it increased the risk to the rest of the men to have such a man taken out of the service and the man who caused his death left in the service.

The work of organizing and directing this movement was assigned to me and I was glad it was because it seemed to me that the knowledge and experience I had gained in the investigation and settlement of accident claims ought to be of some benefit to the men on the road that I had grown up with, as well as to railroad men generally, and if others could have seen that vast army of injured men, those regiments of widows and orphans and dependent fathers and mothers that have passed through my office during the last thirty-two years, they would realize, as I do, the necessity of some practical method being adopted to prevent accidents.

Beginning of the Safety Movement.

We commenced by holding meetings on all the divisions of the system and explained to the men what we were trying to do and its necessity;

That it was the men and not the stockholders, officers or foremen who were being killed and injured and paying the fearful toll in death and injury;

That it was the men and their families who would be most benefited by the prevention of accidents;

That the golden rule in railroading,—"It is better to cause a delay than to cause an an accident" should always be observed.

We also tried to impress on them—

That it actually took less time to prevent an accident than to report one.

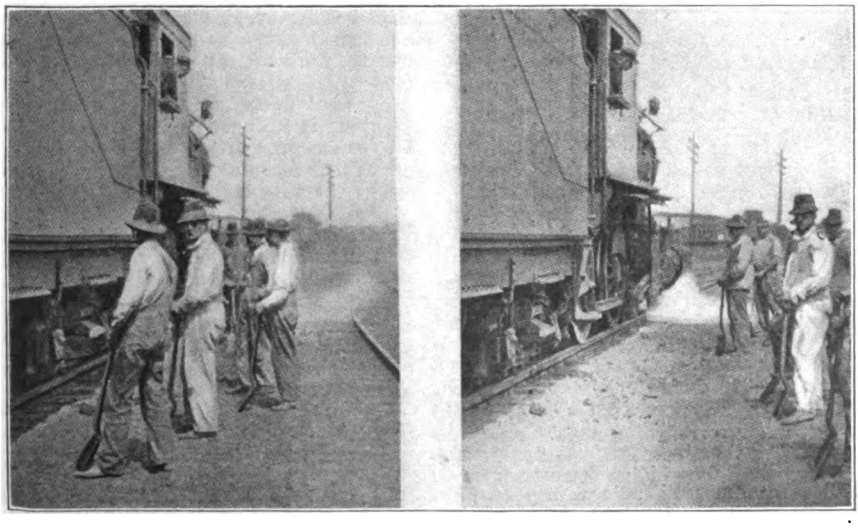

Illustration from "New York Central Safety Magazine."

Laborers Standing too Close to Passing Train for Safety.

Proper Distance from Passing Trains.

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Take the cases of men who are injured by stepping on nails. We had 121 of them last year. How much less time would it have taken in each of those cases to have turned down the nail or thrown the board that had the nail in it in a pile where no one would step on it, than to make a report in each case?

That when we needed new men, if we had fifty per cent fewer accidents on our road than other lines had, we would have the pick of all the best railroad men in the country. Wages and other working conditions being practically the same on all railroads, all the good men would want to work on the railroad where there was the smallest risk of being killed or injured;

That it was the little accidents that make up the big total, just as it is the little things that count everywhere.

Illustration from "New York Central Safety Magazine."

HOLE WHICH SHOP EMPLOYE STEPPED IN RESULTING IN HIS DEATH.

ELIMINATING THE CARELESS HABIT.

During the fiscal year ending June 30th, 1912, we had 70 employes killed and 5,907 injured. Three of them were killed and 158 injured in collisions and derailments, the rest of them in little accidents that are happening every day, that could and should be prevented by the exercise of care, or, in other words, twenty-two out of twenty-three employes were killed and thirty-six out of thirty-seven were injured in little accidents; the other one killed and injured being in big accidents or in collisions and derailments; consequently, it was the little accidents we wanted to get rid of; the big ones would then take care of themselves.

To illustrate: A section foreman has neglected to block the frog or the guard rail; some trainman or switchman goes between the cars to fix the coupling, his foot is caught and he goes down. Nothing can save him and when he comes out after one of those 100,000 capacity box or gondola cars has gone over him, he is either a corpse or a cripple for life. It is just such accidents that make up the majority of the awful total, not collisions and derailments.

That we wanted to get rid of the careless habit and acquire the safety habit;

That we want to stop making cripples and widows and orphans;

That it was the duty of every employe to report to some member of the Safety Committee or other proper officer all defective conditions and methods that might cause an accident before, not after, an accident occurred;

That the greatest risk a careful man runs is the risk of injury from some careless fellow worker and that when the careless man will not change his ways and try to do better, he should be gotten out of the service.

Take the men loading rails: Someone lets go before he should; the rail falls and some track man is injured. Or, take the case of the men coming in at night on handcars; they get to racing and before we know it a collision occurs and several men are injured, occasionally one killed; or, take the case of rails or ties piled or left too close to the track; some trainman or switchman comes along, falls over them in the dark and is killed or injured. All of such cases could have been prevented in less time than it takes to make a report.

That it takes less time to learn to do a thing right than to explain why you did it wrong.

Let us take, for example, a gang of trackmen going to or from work on a hand car. Suddenly a train comes in sight, the men stop the car and some of them attempt to get it off, but before they succeed the engine strikes the car, someone is killed and another railroad widow and six or seven orphans are left in poverty and destitution, all of which could have been avoided if the engineer had slacked up and given the men a chance to get the car off safely, but he took the chance, thinking they would get off, with the usual result; or, if the men on the car had kept a proper lookout and started to get the car off in time, the accident would have been avoided.

That every accident is a notice that something is wrong,—just as the red board is a notice to stop,—with the men, plant or methods, and should be immediately investigated by the person in charge of work to ascertain the cause and apply a remedy;

That every employe was responsible for the safety of others, as well as himself;

That in case of doubt, adopt the safe course. Speed must always give way to safety;

That if we could reduce the accidents fifty per cent, the assessments for life and accident insurance which we are all paying ought to be reduced in the same proportion, and if we could do that, more men would carry such insurance.

Take the case of the trainman whose duty it was to go out to flag and protect the passengers on his train, but who fails to do so and is caught and injured or killed in the collision; or the engineer whose duty it is to watch for signals but

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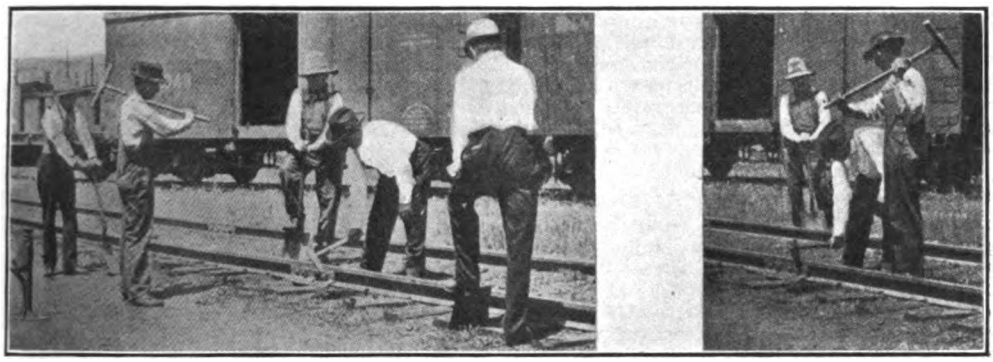

Illustration from "New York Central Safety Magazine."

THE UNSAFE WAY OF CUTTING OFF A NUT.

THE SAFE WAY OF CUTTING OFF A NUT.

who fails to do so, runs by, and into another train or washout and is killed or injured; or, the case of the trainman or switchman who goes between moving cars, or who leaves a car on the side track not far enough in to clear a man riding on the side of a car on another track, and frequently it is the man who so leaves the car who is killed or injured.

How much better it would have been if they had remembered that it is better to be careful than crippled.

ORGANIZATION OF SAFETY COMMITTEES.

Safety Committees were then organized on each division of the road, composed of the three division officers and one or more representatives from each class of labor, such as engineers, firemen, conductors, brakemen, switchmen, trackmen, stationmen, signal men, bridgemen and car men.

The same committees were organized in the larger terminal yards, the members being yardmasters, switchmen, engineers, firemen, trackmen and car men.

Committees were also organized in the shops composed of all classes of labor,—always the men who were doing the work and getting hurt (not the bosses) being the large majority of the membership. These committees meet once a month. The men serve not less than six months or more than twelve and are paid for their time and expenses while attending meetings.

Then the Central Safety Committee was organized, composed of eleven general and division officers, representing all branches of the service, of which committee I am the chairman and to which committee all Division, Shop and Yard Committees report and to whom all changes in standards, rules and customs are submitted, and if approved, are referred to the management for adoption. All matters local to the division, shops and yards are disposed of by such committees without reference to the Central Safety Committee, but the recommendation made and the action taken is reported. During the two years these committees have been in existence over ten thousand dangerous conditions have, through their efforts, been remedied and some conditions, practices, rules and standards applying to the whole system, have been changed or improved.

Every member of the committee is furnished with a safety button as his badge of office and is made to feel that in the meetings all are on a par and each comes there as a committeeman, not as an officer or employe, and that all are full partners in the enterprise and responsible for its success. Suggestions that might bring about greater safety and efficiency in operation were not only invited but solicited.

Postal cards were furnished to the members of the committee and employes generally, on which immediate notice can be given to the chairman of the Division Committee of dangerous conditions and practices, so that the same can be remedied immediately and not wait for the meeting.

The members of the committees are furnished with a copy of the monthly report of the Central Committee, detailed report of all accidents by divisions, statements of accidents by causes, and a statement of avoidable accidents that happened the previous month and the same are also posted on Safety Bulletin Boards.

Slips are put on pay checks of all employes each month, calling attention to specific acts of carelessness, to rules or other things that may cause or prevent accidents, a different one being gotten up for each month, so as to avoid sameness and repetition.

After the work was well under way, it was decided to award a banner to the division having the fewest accidents in proportion to the number of employes and train mileage, and the Central Safety Committee awarded that banner to the Sioux City division in 1911 and to the Wisconsin division in 1912. I believe that it is the first time that such an award has been made in the history of railroading in this or any other country. A similar banner was presented to the North Avenue Yard, Chicago, for the best record for safety in yard work in 1911.

EXTENT OF SAFETY COMMITTEES.

There are now about 650 officers and men serving on these Safety Committees, and, if Benjamin Franklin's saying, "The eyes of the master can do more work than both his hands," is true, surely 650 pairs of eyes trained to look for defective conditions and improper practices, can do more than the eyes of one person or fifty persons, and the results that have been attained during the time the safety organization has been in existence would seem to demonstrate the truth of the saying. And we have shown a very gratifying improvement in the matter of cleaning up obstructions in yards, station platforms, shops and roundhouses, cleaning windows, putting up rail-

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ings at dangerous places, covering gearing of machines, blocking frogs and guard rails, in putting a stop to danerous practices and customs and in repairing cars, engines and machines, which has brought about not only greater safety, but also more efficient operation.

Reduction in Accidents.

We also show the following reduction in our accident record for the year ending June 30th, 1912 as compared with the year ending June 30th, 1910, the latter being the last year before the Safety Committees were organized. In this statement all cases of injury where a man loses one day's time or more are counted, whereas in the reports made to the Interstate Commerce Commission and railroad commissions generally, we report only the cases where the injured employe loses three days' time or more:

17 fewer trainmen killed; decrease of 44.7%.
1562 fewer trainmen injured; decrease of 47%.
9 fewer switchmen killed; decrease of 50%.
11 fewer switchmen injured; decrease of 17%.
3 fewer stationmen killed; decrease of 50%.
134 fewer stationmen injured; decrease of 18.3%.
7 fewer trackmen killed; decrease of 25%.
700 fewer trackmen injured; decrease of 40.1%.
2 fewer bridgemen killed; decrease of 66.6%.
87 fewer bridgemen injured; decrease of 27.7%.
1 fewerShop and RHman killed; decrease of 25%
190 Fewer Shop and RHmen injured; decrease of 15%.

1 car repairer killed in 1912.
31 car repairers injured in 1912.
1 unclassified employe killed in 1912.
31 unclassified employes injured in 1912.

37 fewer employes killed; decrease of 34.6%.
2722 fewer employes injured; decrease of 31.5%.
2 fewer passengers killed; decrease of 18.2%.
207 fewer passengers injured; decrease of 22.3%.
65 fewer persons killed; decrease of 29.5%.
104 fewer persons killed; decrease of 29.5%.
3048 fewer persons injured; decrease of 28%.

	1912.		1910.	
	Killed.	Injured.	Killed.	Injured.
Employes	70	5907	107	8629
Passengers	9	721	11	928
Other persons ..	170	487	235	606
Total	249	7115	353	10163

Illustration from "New York Central Safety Magazine."

Uncollected Lumps of Coal Spilled From Train, a Source of Danger.

Credit to Rank and File of Employes.

The credit for bringing about this reduction in accidents belongs to the rank and file on our railroad, as they have done the work.

This not only means that in those twelve months we have had 104 fewer paper reports of people killed and 3,048 fewer paper reports of people injured than we had during the twelve months ending June 30th, 1910, but that 104 fewer times did we have to call the priest and the undertaker; that 104 fewer times were widows and orphans made and sorrow and sometimes destitution brought into families; that 3,048 fewer times was some one injured, often perhaps permanently; that just that many fewer times did we have to call the doctor and that in our own railroad family 2,732 times did we avoid increasing the risk to other employes, our passengers and patrons by taking experienced men out of the service and putting green ones in their places, and that just that many fewer times did we avoid decreasing the efficiency of our organization.

Accidents Not Inevitable.

This result has been obtained because we have learned that accidents were not inevitable, as we had commenced to believe, but, on the contrary, a large proportion of them can be avoided by the exercise of care and because we have all worked in harmony to bring about an improvement.

If this twelve months' work is an indication of what we can do in the future, it would certainly seem to show that the plan which we have adopted, in which ENTHUSIASM and CO-OPERATION FOR SAFETY IS THE KEYNOTE, will surely result as the years go by in greater SAFETY and REGULARITY, which is what we all want.

And when we commence to exercise the same care in the selection of new men and in educating them as to their duties that we do in the selection and care of new machinery, cars and engines,—and somehow it has always seemed to me that men were the important element on a railroad, or in any business, not the machine,—we will have safer and more regular operation and fewer accidents.

We have devoted much time to getting fine engines and tracks, better cars, better apparatus and better safety things, but very little time or attention has been paid to getting *safety men*, and if we had devoted as much time and thought to getting safety men as we have to getting safety things, and educated the men after we got them, as they are now doing on the Union and Southern Pacific and some other roads, our accident record would be different.

Spread of the Movement.

The following roads, with a mileage of 151,530 miles, have adopted the same safety organization as the North Western or one very similar, and many other roads are now considering the matter:

	Mileage.
Baltimore and Ohio	3,449
Baltimore and Ohio Southeastern	985
Bessemer and Lake Erie	220
Buffalo, Rochester and Pittsburgh	573
Canadian Pacific (Lines East)	5,000
Canadian Pacific (Lines West)	6,812
Chesapeake and Ohio	1,962
Chicago, Burlington and Quincy	9,003
Chicago Great Western	1,496
Chicago, Indianapolis and Louisville	617
Chicago Junction	298
Chicago, Milwaukee and St. Paul	7,296
Chicago and Eastern Illinois	1,300
Cincinnati, Hamilton and Dayton	1,015
Delaware, Lackawanna and Western	972
Denver and Rio Grande	2,777
Elgin, Joliet and Eastern	482
Fort Smith and Western	250
Georgia Southern and Florida	395
Illinois Central	4,769
Jonesboro, Lake City and Eastern	103
Macon, Dublin and Savannah	93
Lehigh Valley	1,454
Missouri, Kansas and Texas	3,090
Mobile and Ohio	1,114
New York Central Lines	10,949
New York, Chicago and St. Louis	543

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Norfolk Southern	680
Norfolk and Western	2,000
Northern Pacific	6,233
Northwestern System	10,005
Oregon Short Line	1,689
Oregon-Washington R. R. and N. Co.	1,927
Pennsylvania	8,789
Queen and Crescent	1,154
Raleigh, Charlotte and Southern	350
Rock Island	8,028
St. Louis and San Francisco	4,732
Santa Fe	10,800
Seaboard Air Line	3,300
Sobora Ry.	263
Southern	7,500
Southern Pacific	9,657
Southern Pacific of Mexico	934
Union Pacific	3,506
Wabash	2,514
Wheeling and Lake Erie	463
Total	151,530

INDORSED BY INTERSTATE COMMERCE COMMISSION.

Attention is also called to the following extract from the 1912 report of the Interstate Commerce Commission:

> "Great possibilities in the direction of a solution of the problem of accident prevention lie in the so-called safety committees which have been organized on many roads. These committees are composed of officers and employes who co-operate in striving to eliminate accidents due to failure of men properly to perform their duties. By making 'safety first' the dominant idea in the minds of employes, and continually pointing out methods for its attainment, an important step in the right direction is taken.

It is so rarely that the Interstate Commerce Commission has commended anything that has been done by the railroads that I take pleasure in quoting this extract.

What it will mean to the workingmen of this country, their families and dependents, to the industries employing them and to the public generally if, by concerted and enthusiastic effort and co-operation we could bring about a reduction of 25 to 50 per cent in the fatalities and injuries must be obvious to everyone. I am satisfied from the little experience that I have had that it can be done.

Emerson says: "Every great and commanding movement in the annals of the world is a triumph of enthusiasm." Whether a movement tending toward safety in industrial operation, or, in other words, a movement FOR THE CONSERVATION OF MEN, is a great and commanding movement depends perhaps, upon the point of view from which the subject is considered; but if, as to most of us, life is the most precious of our possessions, any movement for the preservation of life ought to be a great and commanding one and should be enthusiastically supported by every working man, as well as by every employer, and with such support it must necessarily be successful.

SPIRIT OF CO-OPERATION.

The organization and work of the Safety Committee has, I think, created a greater spirit of co-operation and good feeling between the rank and file and the officers of company because their monthly meetings have made an opportunity for them to get acquainted and as that acquaintance grows, as it must through continued association, the feeling of good will and mutual interest and co-operation must necessarily increase, and it has also provided a method of presenting in an orderly and proper manner to the officers of the company the suggestions and ideas of the men and what the men think as to how the work could be made safer and the operation of the road more efficient and regular.

It has, I believe, largely increased the efficiency of the organization by keeping the old, experienced men at work who previously were only too often taken out of the service by reason of accidents, and avoided the introduction of many new, inexperienced men in the work. How much easier and with how much more regularity, promptness and safety the trains on a railroad can be run when in twelve months 17 fewer trainmen, 11 fewer switchmen and 7 fewer trackmen killed, and 1,567 fewer trainmen, 111 fewer switchmen and 700 fewer trackmen injured than it had during the preceding twelve months, your readers can readily understand.

As the men acquire the SAFETY habit and become more careful of themselves, their fellow employes, passengers and others, it seems to me that they must necessarily become more careful not only of the property of the company, but also of the property intrusted to the company for transportation and consequently, operation must necessarily be not only more efficient but more economical.

The Prevalence of the Trespassing Evil

THE Special Committee on Relation of Railway Operation to Legislation have recently published a bulletin in which is graphically shown the extent to which trespassing on American railroads is indulged in with its resultant fearful loss of life. Attention is called to the fact that, according to reports issued by the Interstate Commerce Commission, 5,434 trespassers lost their lives during the year ending June 30, 1912, which was more than 50 per cent of the entire loss from all causes. It is also pointed out that to save the lives of the passengers and employes of the railroads, legislation has been passed and is proposed which will involve the expenditure of $1,500,000,000, with an annual cost of more than $75,000,000. Here it is pertinently stated that all that would have been needed to save the lives of the 5,434 trespassers referred to would have been the passage of proper legislation prohibiting trespassing with a sufficient penalty attached to make such infringement of the law unpopular. This would cost the public nothing and would save to it the vast economic loss involved in the constant death of its citizens. Trespassers are not, as are generally supposed, tramps or hoboes but are principally workers who use the railways right of way presumably for a short cut to or from their home or place of business.

The public little realizes the extent of this evil, nor the awful consequences thereof. The report of the Interstate Commerce Commission show that in twenty years—1890 to 1909, inclusive—86,-

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733 trespassers were killed and 94,646 injured on the railways of the United States. For the last two years their reports present the following figures:

Trespassers killed, July 1 to June 30, 1911	5,284
Injured, same period	5,614
Trespassers killed, July 1, 1911, to June 30, 1912	5,434
Injured, same period	5,687

Detailed statistics show that most injuries to trespassers are very serious in character, such as the loss of limbs, or other permanent disabling injuries. More than 50 per cent of *all* persons killed on the railways of our country are trespassers.

A very large proportion of these unfortunates are not mere "vags" or "tramps" or "hoboes," but are children or useful citizens, valuable members of society, killed or injured through their own carelessness. Very many of the injured, very many families of the killed, become public charges.

There is no more right or reason why these people should trespass on the tracks or vehicles of the railways than they should upon the private driveways and vehicles of the citizen.

This fearful loss of life and limb can be checked only by the intervention of the law making and law enforcing powers.

All laws should have for their primary object the protection of the citizen, the children and those who are mentally unbalanced, and the prevention of all injury to members of society. The absence of laws preventing and making it a crime or misdemeanor to trespass upon the tracks and property of railroads, where there is constant danger, induces people to expose themselves to the dangers, and walk along the tracks, and to climb on engines and cars, where they have no legal or moral right to be, where they are liable always to be brought into contact with powerful and dangerous machinery, where, of necessity, engines and cars must be operated, and that can be operated nowhere else.

In the absence of such preventive laws, the average citizen is led to believe that railroad tracks and property are public highways upon which they have the right to be, and minors and children, following the example of their elders, also flock upon the tracks, engines and cars, turntables and other property, and the saddest and most heartrending of all railroad casualties are those which result in the death of and permanent serious injuries to minors and children who frequent the yards and play on cars, turntables and engines of railroad companies.

When you look at the statistics it is hardly believable that in as highly a civilized country as ours such things are permitted, but the authorities and the parents of these minors apparently take no action to prevent this fearful roll of death and misery that is occurring every day and every hour on the railroads of this country.

The railroads themselves cannot take any preventive measure, for the reason that they have no law back of them giving them the right or authority to exclude these trespassers from their property.

They cannot even warn the people against the use of their tracks as foot paths. What would be the form of the warning or objection to be served upon the public, and upon whom should the service be made? A painted notice put up along the right-of-way, warning persons to keep off the tracks? We have these notices now from one end of the road to the other—every station in Illinois has a notice to minors to keep off railroad property, but they are not sufficient, as shown by the statistics to stop the continual trespassing.

One of the great evils and living menaces to the whole country, and especially to farmers and residents of small villages and towns, is the hobo, tramp, yeggman, who uses the tracks and property of the railroads on which to ride, walk and sleep. The statistics are appalling, when you analyze them, both as to casualties to them, and the depredations they are committing in their peregrinations through the country, robbing box cars, burning ties, depots, bridges and timbers, robbing farmers, country banks, stores and post-offices—thievery, robbery and arson.

Should laws be enacted making it a crime or misdemeanor to trespass upon the property of railroads, railroad and municipalities of the State would soon see to it that the trespasing nuisance was abated and would not be tolerated. There are but few tramps in Canada. They have there a statute making it a crime for a person to walk upon railroad tracks. The statute is as follows:

Chap. 37 R. S. C., 1906, Section 425:

Every person who—

(a) Wilfully breaks down, injures, weakens or destroys any gate, fence, erection, building or structures of a company; or,

(b) Removes, obliterates, defaces or destroys any printed or written notice, direction order, by law or regulation of a company, or any section of or extract from this Act or any other Act of Parliament, which a company or any of its officers or agents have caused to be posted, attached or affixed to or upon any fence, post, gate, building or erection of the company, or any car upon any railway; or,

(c) Enters upon any railway train without the knowledge or consent of an officer or servant of the company, with the intent fraudulently to be carried upon the said railway without paying fare thereon; or,

(d) Wilfully obstructs or impedes any officer or agent of any company in the execution of his duty upon any train, or railway, or upon any of the premises of the company; or,

(e) Not being an employe of the company, wilfully trespasses by entering upon any of the stations or cars or buildings of the company in order to occupy the same for his own purposes;

Shall be liable, on summary conviction, to a penalty not exceeding Fifty Dollars, or, in default of payment, to imprisonment for a term not exceeding two months.

This statute practically prevents trespassing upon railroad property in the Dominion of Canada. The statistics of the Wabash road, that operates over 244 miles of road in the Province of Ontario, show that the percentage of trespassers killed or injured there is only three per cent of the whole number killed and injured on that line, the 244 miles being approximately ten per cent of the road mileage.

As shown by the table of statistics, a large number of persons who are killed or injured are not tramps or hoboes, but farmers, working men, laborers and other citizens who live in the vicin-

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ity, and who use the tracks and right-of-way for their own convenience.

This fact should be a greater incentive for the authorities to have a law enacted that will prevent such trespassing, and thereby reduce this kind of fatalities.

A statement of trespassers killed and injured in the United States and Great Britain and Ireland for years 1901 to 1910, inclusive, shows that in the United States there were 50,025 trespassers killed and 53,427 trespassers injured. Great Britain and Ireland, 4,435 killed and 1,319 injured during the same period. There were 14 trespassers killed and 14 trespassers injured every twenty-four hours—over one per hour—in the United States in that period, while in Great Britain and Ireland there were one trespasser killed and one trespasser injured every twenty-four hours. Of the 53,425 trespassers injured and 50,025 killed, in the United States 13,000 were under the age of 14 years, 20,000 between the ages 14 and 21. In other words, there have been enough minors killed and injured in the past ten years in the United States to more than make a mile post for every mile traveled in a trip around the world.

During the year 1911 there were 5,204 trespassers killed and 5,614 trespassers injured in the United States on railroads, and the recent statistics published by the Interstate Commerce Commission show that for the year ending June 30, 1912, there were 5,434 trespassers killed and 5,687 injured on steam railroads of the United States.

These statistics show that the trespassing problem is growing year by year, and that it should receive the serious attention of the State legislatures, to the end that such laws be enacted so that authorities and the railroad companies may co-operate in endeavoring to abate this evil.

One writer says:

"The apathy and indifference shown by our law makers towards the trespass question is worthy of mention, especially in view of the many guardianship measures recently passed. Our public men are chanting requiems over our treeless tracts, viewing with alarm soil erosion and the disastrous consequences, pushing back, with an iron hand, the greedy speculator who would butcher our coal lands in far away Alaska. The alleged germ-laden drinking cup has been snatched from the hand of the unsuspecting public. The life line has been thrown out to muskrats and squirrels. Safeguards have been cast about the birds in the air and the fish in the sea; oysters, dumb and unable to vote, are watched with infinite care. The Bureau of Entomology is spraying hackberries and blackjacks, slippery and other elms; rich prizes are being hung up for anyone who can successfully sandbag the boll weevil, that cotton may grow; mounted guards are protecting jack rabbits on our game reservations, and yet the United States government is permitting thousands of its citizenship to be killed and mangled annually without making one move to protect them from their own folly. Magazines and newspapers are periodically informing the public about the terrible butchery on American railways, presenting comparative statistics between this country and Europe, but seldom, if ever, state that over fifty per cent of those killed in the United States were not passengers or employes and had no business upon the tracks. The fact is rarely cited, also, that trespassing is not permitted upon European railways, either by the higher or lower animals."

The Attitude of Labor Unions Towards the Greater Safety Movement

EDITOR'S NOTE:—We print below a letter recently written by Mr. James O. Fagan, railway signalman on the Boston and Maine Railway to the New York *Times*, in which it is asserted, in substance, that if there is a "safety first" movement in progress on the railroads of the United States, it is neither helped nor sanctioned by the great brotherhoods of employes who have been striking, are striking, and will be striking for higher pay. The *Times* asserts that Mr. Fagan is a qualified witness as it was he who proposed eight years ago that "we, the men in the operating departments, should be invited to band together in a Safety League." Mr. Fagan's criticism is aimed not so much at the railway employe as against the leaders of the brotherhoods who, the *Times* editorially states, "had always frowned upon and discouraged any such democratic relationship between employes and managers as such a banding together would form." The spirit of the times, however, backed by an overwhelming popular sentiment, is sharply opposed to obstructive tactics which militate against the conservation of human life, and sooner or later such leaders will be brought to the full recognition of this fact. Mr. Fagan's letter follows:

THE so-called "Safety First" movement which is now becoming so popular on American railroads has more social and industrial significance than is generally supposed.

For one thing, it will be noticed that not a particle of assistance has yet been received from the great brotherhoods of railroad men acting collectively, or from their leaders. Of course, it is absolutely necessary in the interests of safety on railroads that the brotherhoods should be drawn or pushed into this "Safety First" enterprise. A glance at the annual report of the Interstate Commerce Commission, dated Dec. 16, 1912, will bring out this point with considerable emphasis. It reads:

> "The most disquieting and perplexing feature in the problem of accident prevention is the large proportion of train accidents caused by dereliction of duty by the employes involved. Of the eighty-one accidents investigated up to September 1, fifty-two, or more than 63 per cent of the whole number, were caused by mistakes on the part of employes. * * * * The most numerous failures were by trainmen or enginemen."

While management and hosts of individual employes have the safety problem well in hand, its further development is now blocked by the leaders of the big brotherhoods. This statement, of

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course, calls for a prompt explanation. The leaders I speak of are not employes of any railroad. They are in receipt of handsome salaries. Their duties consist specifically and in the main in boosting wages and bettering conditions. They also act as the medium for arranging schedules and settling disagreements. But in carrying out the details of this program we find these labor leaders not only indifferent, but lined up most emphatically in opposition to the "Safety First" principle. To be sure, they have not made any statements to this effect. They are men of deeds, not words. In fine, it is their recognized mission to agitate, foment and engineer a strike on any railroad where any kind of a grievance can be unearthed and dragged to the surface.

To be still more specific, these leaders are now playing the payroll and its influence over the men against the safety movement. The control of this payroll, that is to say, the dominant power in drawing it up and arranging its provisions, is vested in the leaders of the brotherhood. Railroad men are human, and when their leaders come to them and say, "Look here, boys, what do you say to a little more money?" the whole situation resolves itself into a payroll proposition. Now, the fomenting and engineering of strikes is a recognized and necessary feature of the campaign of the brotherhoods to increase the wages and better the conditions of employes. At the same time, as I look at it, there can be no possible fellowship or understanding to-day between a strike of enginemen, firemen, or trainmen and the "Safety First" movement.

For example: As I am writing these lines I read in the newspapers that "Shut down or take your chances with a lot of new and inexperienced men" is the ultimatum of the brotherhoods to the management of the Bangor and Aroostook Railroad in Maine. Several accidents have already been reported at the hands of these new men, and right here in this connection it should now be clearly understood by the public that, all things considered, there are in the industrial world no better conditions, no better wages and no fairer treatment than such as obtain to-day on American railroads.

A strike, therefore, for the purpose of adding a few cents to the daily wage of a worker is simply an insult to that goodwill and sentiment of the people which have consistently assisted the railroad man's cause and have finally succeeded in placing railroad labor on a very high and satisfactory basis. The railroad strike is also a direct insult to the multitude of people who are now working early and late to uplift the worker in other industries, with the idea that satisfactory conditions and liberal wages will ultimately be returned to society in terms of satisfactory service. But now, to-day, not only on the Bangor and Aroostook Railroad in Maine, but practically on all railroads, the people and their interests are threatened with a "tie-up" in the name of more money and less work. Look where you will, the excuse for a strike on railroads is nearly always said to be in the interests of so-called uniformity.

Carefully nursed and interpreted by the leader of the brotherhood, this uniformity is a shifting, flexible scale of wages of the will-o'-the-wisp variety. It keeps bobbing up in unexpected quarters all over the country and is continually being adjusted in terms of its highest level. Consequently, on the railroads, so far as the payroll is concerned, the expressions, to make it uniform, to standardize, and to boost, have one and the same significance. Meanwhile the traveling public is made the victim of this surprising industrial situation, and is coolly invited to suffer in general or to walk in particular.

The way out of this tangle is simplicity itself. In a word, the employes can be trusted if we can get rid of the machine that is *working them*. And this machine would die a natural death if only it were deprived of its weapon, *the payroll*. In this way also the dilemma of the manager in dealing with discipline, the safety problem, and the wage issue, in the same breath as it were, would be dissolved once and forever. That is to say, when the Interstate Commerce Commission is given authority to license the men and regulate the payroll, "Safety First" will finally come into its own.

In the natural course of events, and in the name of the people, the Interstate Commerce Commission now finds itself heir apparent to all this industrial muddle. In the interests of safety and reasonable management, it will soon be called upon to show its hand and explain its understanding of the labor situation in relation to safety. In the twenty-sixth annual report of the Commission some five pages are devoted to information relating to the investigating of accidents. Under the law of May 6, 1910, we read that "valuable information respecting the causes of railroad accidents" has been secured and it indicates the need of more effective measures than have thus far been taken to secure safety of railroad travel. In the main, such matters as rails, ties, the track, carelessness, excessive speed, the responsibility of the traveling public are the principal features of this safety discussion. To anyone either on the inside or out, however, who pretends to have the slightest knowledge of the situation, it will surely seem passing strange that the simple words Labor Union, Brotherhood, Schedule or Grievance Committee do not appear in this report nor are they referred to or hinted at in any way.

When one comes to consider that the railroad itself, safety problem included, is to a very great extent directed and controlled by the contents of the schedule and the action of the Grievance Committeess, it is surely reasonable to expect that two years and a half of investigation would be sufficient to get a word or two about these fundamental factors in the safety situation into the annual report.

Meanwhile the Interstate Commerce Commission has very definite work in hand in relation to the "Safety First" movement. It should examine and license the employes in the train and engine service and in this way eliminate so far as possible the careless and inefficient workers. In the second place, it should regulate wages and in this way eliminate the "strike." In doing this, as I take it, the Commission will take the labor situation on railroads by the horns. I'm quite aware there will then be *something doing*, but never mind. Let the influence and power of the Interstate Commerce Commission be extended to include the regulation of the payroll and then the people at large will immediately get an inkling of what the country has to face and expect in the matter of Government ownership. Sooner or later the Government must get acquainted with these Brotherhoods and, as I look at it, in the interest of safety on railroads, the sooner the better.

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Economy in Gas-Electric Motive Power

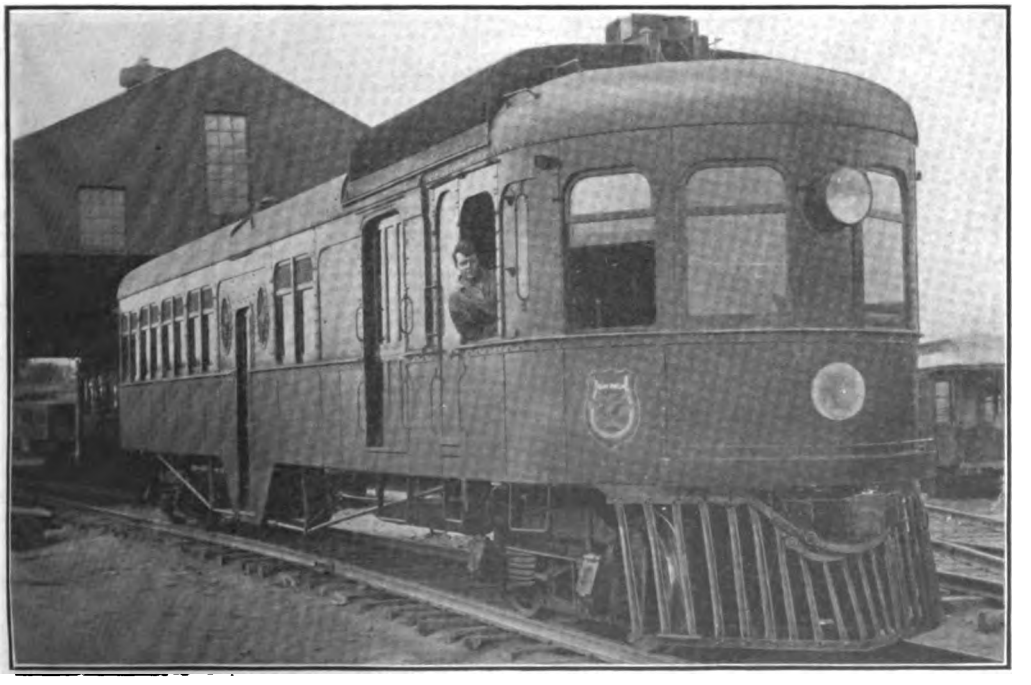
THE first gasoline electric locomotive ever built is expected to be in operation on the Minneapolis, St. Paul, Rochester and Dubuque Railroad which operates between Minneapolis, Minn., and Northfield, Minn., after May 1st, 1913. This new locomotive will be 39½ feet long, 20 feet between truck centers, 6 feet 10 inches wheel base, 12 feet 8 inches in height from rail to top of radiators, with a height from rail to floor line of 3 feet 7 inches. The diameter of each of the eight drive wheels will be 33 inches. The locomotive is to be of all-steel construction, and will develop a maximum of 640 horsepower from its two gas electric engines with a normal capacity of 250 horsepower each. It will contain an air compressing set and lighting generator, capable of lighting ten passenger coaches with twenty 16-candle-power lamps each. The additional cost to manufacture this number of lights will not exceed five cents per hour for additional fuel. When once placed in service, it can be ready for service any time night or day on five minutes' notice, compared with from four to six hours preparation by steam locomotives.

The weight of the new locomotive will be fifty-four tons as against the weight of the average steam locomotive of 115 tons. This means a smaller ratio of fuel required to maintain an equal ratio of tractive effort and speed. Two 200-gallon tanks will be carried for gasoline, which when filled will weigh 12,000 pounds, as against the weight of an engine tender of 33,000 pounds. The tanks hold sufficient fuel for a trip of 500 miles. The radiators at the top of the gas electric locomotive will hold about 500 gallons of water, weighing about 4,000 pounds. This would be all the water required to run a gas motor a month. One operator or motorman is all that is required for operative purposes.

Two separate units have been provided for in the engine. Each of these contain eight cylinders. When the locomotive is pulling three or four cars, the use of but one of these engines will be required, but when double that number of cars are to be hauled, sixteen cylinders are placed in service by simply turning a valve. In other words, only such power is necessary to place in service as the weight of the train load requires.

INTERIOR OF GASOLINE ELECTRIC MOTOR CAR.

The accompanying illustrations show the exterior and interior of the 72-foot gasoline electric steel motor cars now in use on this line. The interior view is that of a parlor car. The regular coaches seat 91 persons with additional space in the baggage room for the carrying of consider-



GASOLINE ELECTRIC MOTOR CAR OPERATING BETWEEN MINNEAPOLIS AND NORTHFIELD, MINN.

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able freight or express. All-steel trailer cars seating 106 passengers are employed, while the locomotive which is to be put into service in May will readily haul from two to four of these trailer cars as conditions may require.

A maximum speed has been attained on level track with one single car of 60 miles per hour and a maximum speed on level track with one trailer of 50 miles per hour, while with two trailers, 40 miles per hour has been easily made. The distance from Minneapolis to Northfield is 38 miles, and the limited cars make this trip with eleven station stops in 77 minutes.

One of the fifty-ton all-steel cars 70 feet long, with a seating capacity for 92 passengers and a baggage room large enough to hold 40 barrels of oil can be run from Minneapolis to Northfield at the following expense:

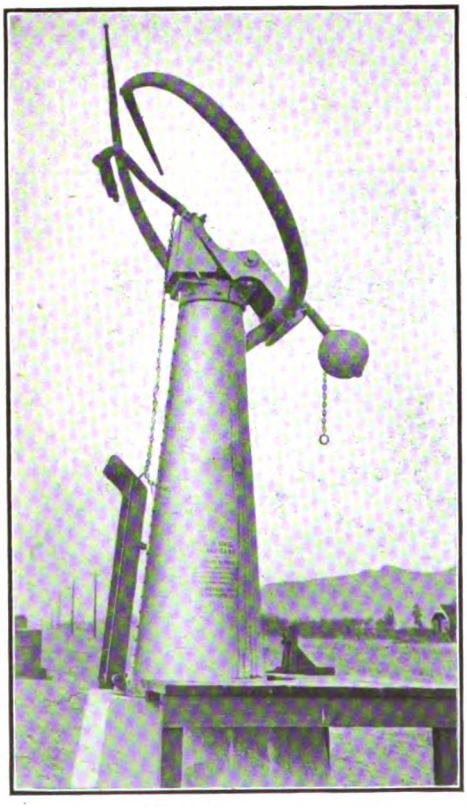
23 gals. gasoline at 12c. gal.	$2.70
2 quarts gas eng. oil at 25c. gal.	.13
1 qt. journal oil at 7c.	.02
1 lb. cotton waste	.10
1 lb. gear grease	.03
Wages of motorman and conductor	1.86
Making the total cost for the 38 miles	$4.84

These figures were taken from records and books of the company.

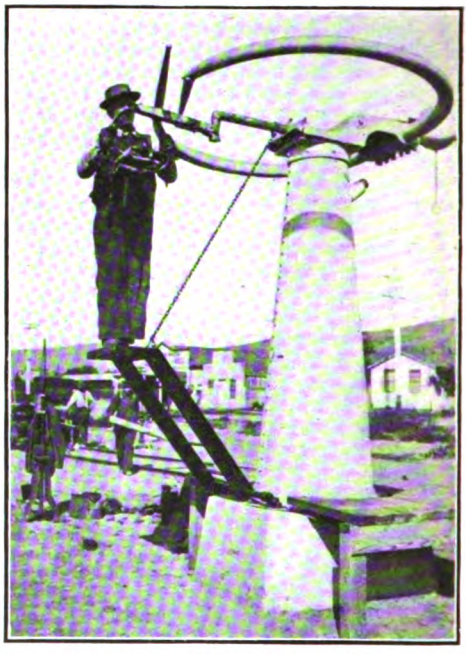
A New Mail Dispatcher

By ALBERT MARPLE.

TO exchange three cases of eggs while the train is traveling at a rate of fifty-five miles an hour without damaging the eggs, is the latest feat accomplished by the Jones mail exchange device, which has just been endorsed by the United States Government, adopted and installed by the Southern Pacific Railway Company on its California (Coast) division. In addition to performing this wonderful stunt the dispatcher has exchanged mail while the speed of the test train ranged from five to sixty miles an hour. The tests in the taking on and putting off of mail at the same instant in pouches weighing from 150 to 450 pounds each, proved that the lighter sacks were handled apparently with as much ease as were the heavier ones. Of the eggs that were exchanged at this rate some were set under a hen and a seventy-five per cent hatch resulted. The three cases when stuffed in the pouch completely filled it.



CIRCULAR ARMED MAIL DESPATCHER AND RECEIVER.



ARRANGING FOR AN EXCHANGE OF MAIL MATTER.

The principle of the Jones dispatcher is entirely different from any thus far invented. The old straight arm exchanger is entirely done away with. In its place comes a circular armed catcher. The circle made by the arms or horns is about eight feet in diameter and has overlapping points, which extend over each other about four feet on the side nearest the track. These horns are thick at the rear and taper toward the points. The arms rest in a cradle which in turn is set upon a cylindrical steel standard or crane. This standard is buried in a foundation of cement, and tapers from about two and a half feet at the bottom to one and a half feet at the top. A platform is erected upon the foundation and around the crane for the convenience of the person who sets the mail pouches in place. On the

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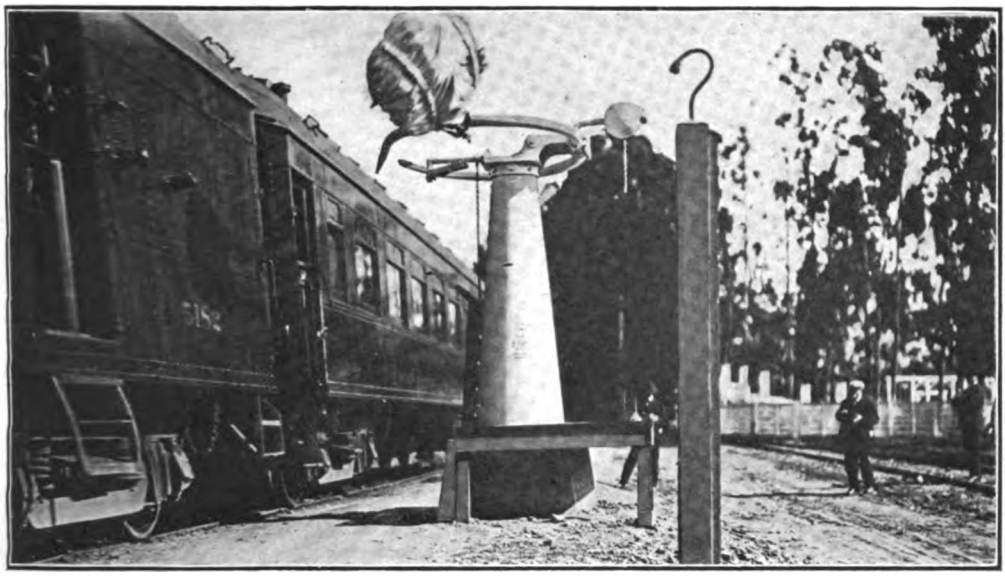

CONSIGNMENT RECEIVED FROM FAST MOVING TRAINS.

side nearest the track resting upon the platform and connected by a chain to the horns is an iron ladder, upon which the agent stands while arranging the device for the exchange. When this ladder is lowered its weight pulls down the horns to the position ready for the transfer.

Especial apparatus for the exchanger is arranged in the car. Upon the ceiling of the car is fastened a steel track, this running from the center of one door to the center of the door on the opposite side of the car. From this track hangs a steel carriage having a delivery arm and catcher hand on either end.

When it is desired to make the exchange the mail clerk, after filling the exchange sack, fastens an especially prepared ring to the loop at the top of the pouch. This ring he puts on the delivery arm of the sliding carriage. When the train is nearing the exchange point the clerk simply pushes the carriage bearing the sack out of the car door. when it reaches a certain point it automatically locks, the one movement at the same time fastening it to the door and also setting the catcher hand, which is to take the sack from the standard. At the station the agent also attaches a sack to a ring and slides this ring into a slot at the end of the delivery arm of the standard.

The exchanging of the sack from the standard into the car and from the car to the standard is done simultaneously and with such speed that when the train is traveling at a high rate of speed one can hardly see the sacks travel. The sack from the standard is deposited on the floor of the car, while the one from the car whirls around the horn of the standard. Upon reaching the back of the horns the sack stops and its weight in addition to that of the balancer on the back of the horns causes the horns to tip backward, making the necessary law-required clearance of the track.

William H. Jones, of Manhattan Beach, California, the inventor, was impressed by the necessity of a modern mail exchanger while he was postmaster at the small town of Iola, Idaho. The danger arising from the throwing of mail sacks to the station platform seemed to Mr. Jones to be unnecessary, so he at once set about to correct this crude method.

During the tests H. W. Watkins, of the Southern Pacific, represented the railroad company, F. G. R. Moore, chief clerk of the railroad mail service, represented the Government, while William Llewellyn looked for possible constructural defects.

The portion of the Southern Pacific system now using these standards is being extended. The device is rapidly meeting with favor by officials of other railway companies, it having already been adopted by a number of other lines.

J. J. Hill Discusses Credit.—The modern industrial community, in its widest as well as in its narrowest scope, rests on credit, according to James J. Hill, principal speaker at the eighteenth annual banquet of the St. Paul Association of Credit Men. Mr. Hill's address was "On the Use and Abuse of Credit." The excessive capitalization of trusts and some less spectacular enterprises and the increase of public indebtedness everywhere were given by Mr. Hill as the principal abuses of credit at the present time.

"The commonest form of the abuse of credit has been the issue by Governments of cheap money. Possibly the world has grown too wise to fall again into the trap of this delusion. But it is doing or permitting practically the same thing in other forms. The excessive capitalization of trusts and of some less spectacular enterprises has much the same effect as an issue of cheap money. Stocks and bonds are put out which represent little or nothing in the shape of actual values. So long as we have no effective laws compelling all stocks and bonds to be paid for at their full face value, either in cash, property or service at a fair valuation, so long will this evil continue.

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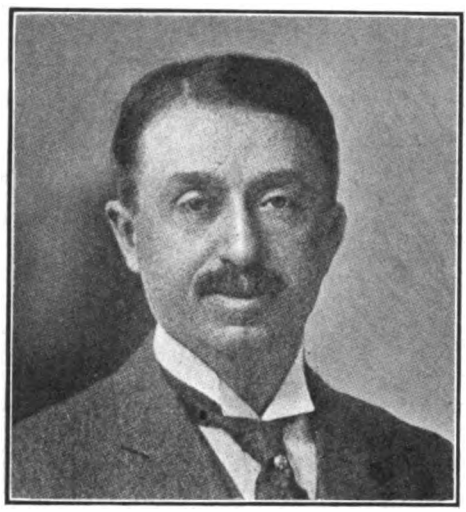
Personal



Frank Trumbull.

FRANK TRUMBULL, who recently was elected a member of the Board of Directors of the Union Pacific Railroad Company has spent practically all of his life in the transportation industry.

His participation in railroad affairs has been a large factor in the development of many roads and in the opening up of new territory, particularly in the West and Southwest, and his prominence in the railroad world has been attained by close attention to details, painstaking industry, and fidelity to the interest in hand.

Mr. Trumbull received a preliminary educational training in the public schools, and entered upon active business life at the early age of twelve. His first work was as a clerk in the post-office and in a country store at Pleasant Hill, Mo. Four years later he entered the railway service on the first of October, 1874, as a clerk in the comptroller's office of the Missouri, Kansas & Texas Railway, at Sedalia, Mo. Until 1880 he was associated with the accounting department of that road, holding, among other positions, that of traveling auditor.

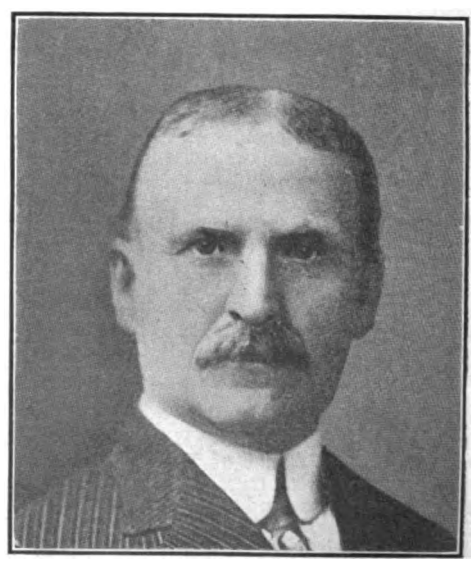
From 1881 to 1885, inclusive, he was connected with the Missouri Pacific at St. Louis, becoming on the first of January, 1886, auditor of the Texas & Pacific Railway and holding that position until July 1, 1888.

During the five ensuing years he was identified with Colorado's wholesale coal interests, and was also engaged by New York and London bankers to report upon railroad and other properties in the West. Ultimately returning to active participation in railroad affairs, he, from December 18, 1893, to January 11, 1899, served as receiver and general manager of the Union Pacific, Denver and Gulf Railway, and served the Denver, Leadville & Gunnison Railway in the same capacity from August 8, 1894, to January 11, 1899. On this latter date he was elected president of the Colorado & Southern Railway Company, which succeeded the Union Pacific, Denver & Gulf Railway Company. Later in that year he was elected president of the Fort Worth & Denver City Railway Company; in 1900, president of the Colorado Midland Railway Company; and in 1905, president of the Colorado Springs & Cripple Creek District Railway Company. During Mr. Trumbull's administration the Colorado & Southern Lines conservatively expanded, and their net earnings increased tenfold. It was one of the only two systems that increased their gross and net earnings during the panic year of 1907.

In 1909, Mr. Trumbull withdrew from many of his interests, but was persuaded to accept the chairmanship of the Board of Directors of the Chesapeake and Ohio Railway Company. He was elected to this position on February 23, 1909, and has held same ever since. He is also chairman of the Board of Directors of The Hocking Valley Railway Company, and of Missouri, Kansas and Texas Railway Company; and a member of the Board of Directors of Union Pacific Railroad Company, the Minneapolis & St. Louis Railway Company, the Kanawha & Michigan Railway Company; a director of the National City Bank of New York and a trustee of Union Trust Company of New York.

He was married on June 8, 1881, to Miss Cora Hale, who died on December 27, 1889. On April 8, 1891, he was married to Miss Mary A. Sisson, daughter of Frederick P. and Mary Ann (Field) Sisson, of Illinois.

Mr. Trumbull is a member of the Metropolitan Club of New York City; of the City Midday, Recess and Economic Clubs, and also of the Missouri and the New England Societies, the Society of Colonial Wars, the Automobile Club of America, and the Denver Club, Denver, Colorado. He is a member of the Board of Directors of the Tuskegee Normal and Industrial Institute, and takes an active interest in the affairs of the New York Committee of the Civic League for Immigrants, of which he is chairman.



ALBERT R. WHALEY.

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A. R. Whaley.

A. R. WHALEY, recently elected vice-president in charge of operations of the New York, New Haven and Hartford Railroad, was born near Providence fifty years ago and started his railroad career when 16 years of age as a freight brakeman on the old Providence & Worcester at $1.62 a day.

His career from a freight brakeman to a position valued at $20,000 to $25,000 per year as the operating vice-president of the New Haven system, spans the most epoch making generation of thirty-four years in this country. From brakemen on both freight and passenger trains, baggage-master, freight and passenger conductor, trainmaster, yardmaster, and general agent at Providence of all the railroads centering there and eventually consolidating the Providence yards, and superintendent of the Worcester Division, he came to have charge of the first heavy traction electrical installation in this country which was at Providence on the line between Providence and Fall River.

He became superintendent of the New York Division in 1904 and in 1906 was chosen by the joint roads as their representative in charge of the New York Terminal upon the beginning of the construction and electrical installation for this greatest electrically operated passenger terminal in the world. All the electric and terminal change over has been under him and he has had charge of not only the operation but of the power houses, roadbed and equipment and has been chairman of the committee of seven on auxiliary facilities which has passed upon the work of more than a dozen sub-committees in more than 100 meetings, every one of which Mr. Whaley has presided over and passed upon everything relating to construction for operation, from items of minor import up to seven millions.

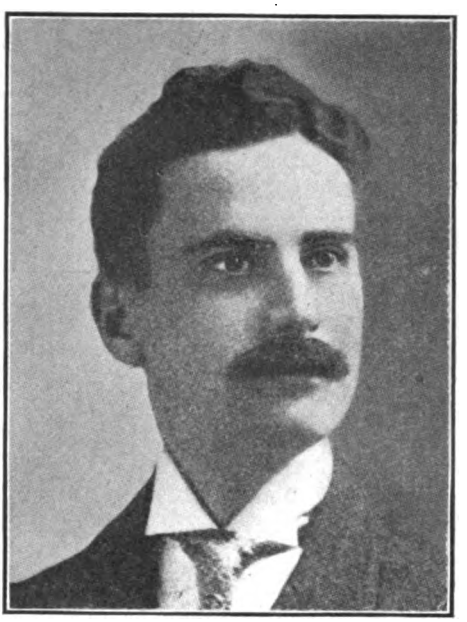
Mr. Whaley has been for seven years in charge of the Grand Central Terminal at 42nd Street which is operated jointly by the New York New Haven & Hartford R. R. Co. and the New York Central; and also superintendent of the electric zone of the New York Central, which extends as far as Croton on the Hudson and White Plains on the Harlem Division.

Mr. Whaley was formerly superintendent of the New York Division of the New Haven and therefore his return to the New Haven, which is gradually expanding its electrical zone eastward, is very natural. He will make his headquarters at the Grand Central Terminal, and in Boston.

Lewis J. Spence.

LEWIS J. SPENCE was born at Wilmington, Delaware, on September 16, 1868. He was educated in the public and high schools of Wilmington, but terminated his studies at an early age in order that he might make his own living.

He entered railroad service at the age of seventeen, and has remained continuously in this field. His first position was as a stenographer in the office of Edwin Hawley, who was then general eastern agent of the Southern Pacific Company. His association with the man who later became one of the powerful figures of the transportation world was very valuable to him. At the age of twenty-one he became chief clerk, and was later made eastern freight agent. In 1902, he succeeded Mr. Hawley as general eastern freight agent, and in 1906, became general freight agent of the Atlantic Steamship Lines, in addition to the above.



LEWIS J. SPENCE.

In January, 1911, he was appointed assistant director of traffic, with headquarters in Chicago. On January 1, 1912, he succeeded Mr. J. C. Stubbs as director of traffic of the Union Pacific-Southern Pacific Systems, and also became a member of the Board of Directors of the constituent companies.

To comply with recent decree of the Supreme Court, it has been necessary to completely separate the control and management of these systems, and Mr. Spence will be director of traffic of the Southern Pacific Company, remaining a director of that Company and of its subsidiary companies.

Mr. Spence is a member of the Union League Club and the Traffic Club of Chicago, and of the City Lunch Club, the Railroad Club and the Traffic Club of New York.

David L. Bush.

DAVID L. BUSH, who was recently elected vice-president of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, was born on July 31, 1855, at Sharon, Wis. He began railway work in December, 1872, as night operator for the Western Union Railway, and was later to January, 1877, chief operator in the train despatcher's office of that road at Racine, Wis. He was subsequently, until September, 1880, train despatcher; from May 1, 1877, to January 1, 1882, also superintendent of that road and the Sabula, Ackley & Dakota, and from September, 1880, to July 1, 1887, also superintendent of the Racine & Southwestern Division of the Chicago, Milwaukee & St. Paul. On the latter date he was transferred to the superintendency of the James River Division, and from February 1, 1888, to February 1, 1890, was superintendent of the Southern Minnesota Division. He then became superintendent of the Hastings & Dakota Division, where he remained until August 15, 1894, when he was transferred

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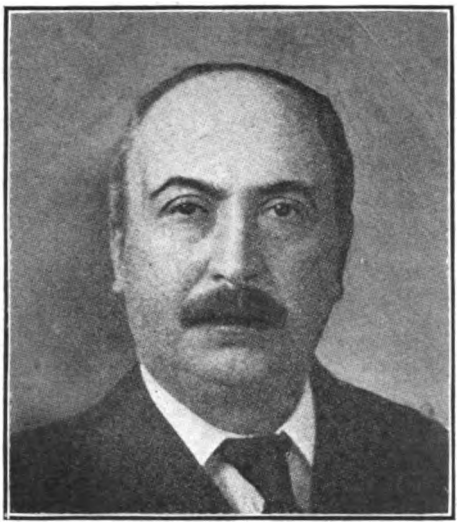


D. L. BUSH.

to the River Division as superintendent, with headquarters at St. Paul, Minn. Mr. Bush was promoted to assistant general superintendent, with office at Milwaukee, Wis., on April 1, 1898, and was made general superintendent May 1, 1903. He was appointed general manager, with headquarters at Chicago, October 1, 1909, and his election to the office of vice-president became effective on January 23.

R. Lancaster Williams.

R. LANCASTER WILLIAMS, of Middendorf, Williams & Co., who was recently elected president of the Georgia & Florida Railway, was formerly a member of the firm of John L. Williams & Sons, of Richmond, now member of the firm of Middendorf, Williams and Company, Baltimore. While connected with the Richmond firm, and also with Middendorf, Williams & Company, Mr. Williams has been very active in the development of street railways, railroads, industrial enterprises, and banks and trust companies. He was a receiver of the Seaboard Air Line Railway with S. Davies Warfield and E. C. Duncan, which receivership was most eminently successful, the property having been greatly improved physically, and the gross and net earnings increased materially, enabling the reorganization committee to reorganize the property without any assessment, or the scaling of any class of security.

Mr. Williams is now a member of the Board of Directors of the Missouri-Pacific Railway, the International and Great Northern Railway, president and director of the Georgia & Florida Railway, member Board of National Bank of Baltimore, vice-president and director of The Munsey Trust Company, vice-president and member Board of the Virginia Railway & Power Company, the Augusta-Aiken Railway & Electric Corporation, and Citizens' Fire Insurance Company of Baltimore.

E. D. Sewall.

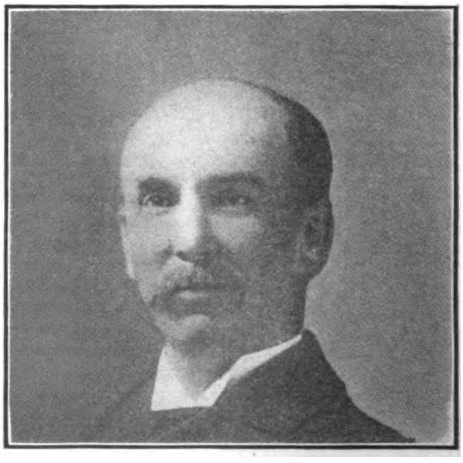
E. D. SEWALL, who was recently appointed vice-president of the Chicago, Milwaukee and St. Paul at Chicago, entered the service of this road in September, 1882, as agent at Stillwater, Minn.; prior to that time he had been connected with the engineering departments of the Northern Pacific, Chicago & Canada Southern, St. Paul, Minneapolis & Manitoba and St. Paul & Duluth Railways. He was appointed traveling lumber agent, Milwaukee, in May, 1888; commercial agent, St. Paul, in December, 1889; assistant general freight agent, Superior Division, Milwaukee, in March, 1895; general northwestern agent, Minneapolis, in March, 1898; assistant general superintendent, Minneapolis, in May, 1902; assistant to the president, Chicago, in June, 1906; vice-president, Chicago, in January, 1913. He has been vice-president of the Chicago, Milwaukee & Puget Sound Railway Company since January, 1909.

W. E. Higgins.

W. E. HIGGINS, who recently was appointed acting vice-president and general manager of the Lackawanna and Wyoming Valley Railroad entered railroad service in 1893 as a stenographer in the general freight office of the Old Colony Railroad, at Boston, Mass. This road was soon afterwards leased by the New York, New Haven & Hartford R. R. Co. December, 1895, assigned to special work for the president of that company. June, 1896, transferred to clerk in office of treasurer of The Boston Terminal Company, which was then incorporated by the railroad companies for the purpose of constructing the Boston South Station. October, 1900, transferred to stenographer to fourth vice-president of the New York, New Haven & Hartford R. R. Co., at Boston. March 1, 1903, to February 1, 1909, chief clerk to vice-president of Lackawanna & Wyoming Valley R. R. Co., at Scranton, Pa. February 1, 1909, to February 1, 1913, assistant to the general manager of the Lackawanna & Wyoming Valley R. R. Co., at Scranton.

H. R. Williams.

H. R. WILLIAMS, who was recently elected vice-president of the Chicago, Milwaukee & St. Paul, with headquarters at Seattle, Wash., has been transferred to New York as vice-president in charge of the financial and



H. R. WILLIAMS.

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transfer departments. He was born on July 14, 1849, at Palmyra, Wis., and began railway work in January, 1867, with the Chicago, Milwaukee & St. Paul. He was telegraph operator for four years at various stations, then for two years was assistant train despatcher at Milwaukee, and later for eight years was train despatcher on the Hastings & Dakota and River Divisions at Minneapolis. He was then for one year trainmaster on the Hastings & Dakota and the Iowa & Minnesota Divisions. From January, 1882, to September, 1885, he was superintendent of the Iowa & Minnesota Division, and then was superintendent of the Southern Minnesota Division at La Crosse, Wis. In February, 1888, he was appointed superintendent of the Ottumwa & Kansas City Line at Kansas City, Mo., and Chillicothe, and from June, 1890, to March, 1898, was assistant general superintendent of the Northern District of the same road. He was promoted to general superintendent in March, 1898, and in February, 1900, was made general manager of the same road. In October, 1905, he was elected president of the Pacific Railway, which was incorporated to build the Washington section of the Chicago, Milwaukee & St. Paul extension to the Pacific coast, and in January, 1909, became president of its successor, the Chicago, Milwaukee & Puget Sound, which position he held until his election on January 1, 1913, as vice-president of the Chicago, Milwaukee & St. Paul.

H. E. Pierpont.

H. E. PIERPONT, who was appointed freight traffic manager of the Chicago, Milwaukee & St. Paul Railway on January 15, 1913, entered the service of the Chicago, Milwaukee & St. Paul Railway, as telegraph operator at Council Bluffs, Iowa, in 1883; occupied various positions in station and accounting department until made freight agent at Kansas City, Mo., in 1892. Was appointed division freight and passenger agent in 1893, holding such position at Winona, Minnesota and La Crosse, Wisconsin, until January 1, 1896, when he was appointed assistant general freight agent with offices at Chicago. Continued in this position until January 1, 1906, when he received the appointment of general freight agent at Chicago, holding such position until made freight traffic manager, January 15, 1913.

H. E. PIERPONT.

J. G. Hollenbeck.

J. G. HOLLENBECK, recently appointed general passenger agent of the Missouri Pacific and the St. Louis, Iron Mountain & Southern, began railway service in 1895 as ticket agent of the Indiana, Decatur & Western at Indianapolis, Ind., and later became traveling passenger agent for the same road. In 1899 he became chief clerk in the passenger department of the Florida East Coast at St. Augustine, Fla., and two years later was appointed district passenger agent of the Louisville & Nashville at Atlanta, Ga. He was subsequently division passenger agent at the latter place until 1907, when he was made general agent of the passenger department of the Missouri Pacific and the St. Louis, Iron Mountain & Southern, with headquarters at Cincinnati, Ohio. He remained in that position for 18 months and was then promoted to assistant general passenger agent at Little Rock, Ark., which position he held on January 1st, when he was appointed general passenger agent, with headquarters at St. Louis, Mo.

J. G. HOLLENBECK.

Frederic A. Miller.

FREDERIC A. MILLER, general passenger agent of the Chicago, Milwaukee & St. Paul, has been appointed passenger traffic manager, with headquarters at Chicago, effective January 15th. Mr. Miller was born April 10, 1858, at Harford, Pa., and began railway work in August, 1874, with the Cairo & Vincennes, now a part of the Cleveland, Cincinnati, Chicago & St. Louis, filling the positions of cashier and ticket seller at Cairo, Ill., and freight and ticket agent and clerk in the general freight and passenger office until 1878, when he was made general passenger agent of that road. He resigned in 1882, and for one year was union ticket agent of the Wabash, St. Louis & Pacific, the St. Louis, Iron Mountain & Southern, and

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F. A. MILLER.

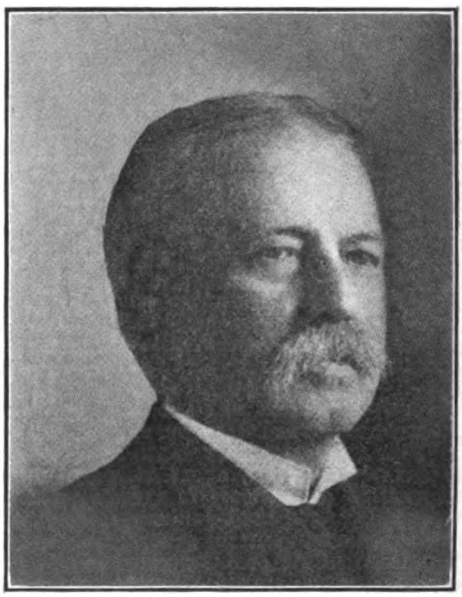
the Mobile & Ohio at Cairo. Mr. Miller then went to the Chicago, Milwaukee & St. Paul as clerk in the general passenger department. Two years later he was made general agent at Chicago, and from 1887 to October, 1900, he was assistant general passenger agent. He was then appointed general passenger agent, and now becomes passenger traffic manager, having completed thirty years of service with the St. Paul road.

James Roberts Wood.

JAMES R. WOOD, who until his recent retirement, was passenger traffic manager of the Pennsylvania Railroad, was born in Auburn, N. Y., February 9, 1843. He commenced his railroad career in 1869, as secretary to the superintendent of the Burlington and Missouri River Railroad, at Creston, Iowa. From this post he was advanced to the position of trainmaster, which he held until 1871, when he was appointed general western passenger agent of the same road, with office at Chicago.

JAMES R. WOOD.

In 1873 Mr. Wood became general ticket agent of the Burlington and Missouri River Railroad in Nebraska, and subsequently Western land and passenger agent. After a short service in this capacity he was appointed general agent of the Michigan Central and Chicago and West Michigan Railroads, at Grand Rapids, Mich., and in 1876 assistant superintendent of the same Company, at Jackson, Mich. In 1878, Mr. Wood returned to Chicago as assistant general passenger agent of the Michigan Central Railroad, for a few months only, returning to the Chicago, Burlington and Quincy Railroad as general passenger agent of that system. He continued in this position until April, 1881, when he received the appointment of general passenger agent of the Pennsylvania Railroad, which position he filled until his appointment as passenger traffic manager, on June 1, 1903.



E. H. FITZHUGH.

E. H. Fitzhugh.

E. H. FITZHUGH, president of the Central Vermont, resigned that position on January 23d, and also resigned from the Board of Directors. Mr. Fitzhugh was born February 1, 1853, at Danville, Montgomery County, Mo. He began railway work in 1873 as a clerk in the office of the master car builder of the St. Louis, Kansas City & Northern, now a part of the Wabash, at St. Louis. After serving in the car accountant's office of the same company he was made chief clerk to the superintendent of the Western Division of the Wabash, remaining in that position until 1889 when he became master of transportation for the lines west of the Mississippi River on the Wabash at Moberly. In January, 1896, he was appointed secretary to the general manager of the Grand Trunk at Montreal, Que., and the following July was made superintendent of the Middle Division at Toronto, Ont. From May, 1899, to March, 1901, he was vice-president and general man-

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ager of the Central Vermont. He was appointed assistant to the president of the Southern Pacific in May, 1901, at San Francisco, Cal., remaining in that position until November of the same year. The following February he returned to the Central Vermont as vice-president and general manager, and on January 1, 1905, was elected third vice-president of the Grand Trunk, and also retained his office of vice-president of the Central Vermont. In January, 1910, he was elected first vice-president of the Grand Trunk, retaining also the vice-presidency of the Central Vermort, as well as the vice-presidency of the Detroit & Toledo Short Line. In the latter part of 1911, he was elected president of the Central Vermont Railway, the Central Vermont Transportation Company, the Southern New England Railroad Corporation, the Southern New England Railway and the Montreal & Southern Counties Railway, at which time he relinquished his duties in connection with his former position to devote his time to the companies named. Mr. Fitzhugh was the chief coadjutor of the late Charles M. Hays in the extension of the Grand Trunk system into New England; and, as will be seen from the foregoing, he had been associated with Mr. Hays throughout his railroad career.

Financial

Downward Drift in Security Prices.

THE month in the financial and money markets has been remarkable for a steady downward drift of security prices. In spite of continued ease in money, evidenced by low rates for call loans, the values of the principal railroad and industrial stocks moved steadily downward. Several prominent railroad stocks, including Atchison, Erie, New York Central, Pennsylvania, Norfolk & Western and Southern Pacific, has sold below the lowest prices recorded in 1912. A significant feature of the situation, which has caused not a little uneasiness, has been the rapid decline in the preferred stocks of certain industrial corporations recently issued. In the week ending February 21st, for example, the preferred stock of the Goodrich Company dclined 14¾ points, Woolworth preferred stock, at the lowest, showed a loss of nearly 12 points, and Studebaker of 5⅜ points.

In spite of this gloomy situation in the stock market, the general position of the country continues to improve. The January totals of exports and imports show large expansion, and it is especially noteworthy that the increase in exports was mainly in the class of manufactures and merchandise. The aggregate merchandise exports for January were $237,000,000 compared with $202,000,000 last year. Merchandise imports for January have also reached high figures, standing at $162,000,000, a monthly total exceeded only once in our history. The net result of seven months foreign trade is a credit balance, so far as the figures of exports and imports go, of $430,000,000.

Building Operations.

BUILDING operations throughout the United States, an excellent indication of the soundness of the business situation, continue very active, the total estimated outlay reaching $55,000,000 as compared with $48,000,000 last year. The commercial failures exhibit for the month of January is more favorable than a year ago. Messrs. R. G. Dun & Co's. compilation of commercial failures for January, 1913, shows 1814 failures with indebtedness of $22,972,000, against 1897 with liabilities of $19,770,000 in 1912. The increase in liabilities was due to the unusual amounts involved in a few failures.

Railroad Traffic and Earnings.

RAILROAD traffic and earnings continue to show small increases. Reports from the steel trade are also encouraging, orders being received on a greater scale in February than January. The settlement of the firemen's strike already noted on another page, removed a depressing influence. It should not be forgotten, however, that the ever-recurring controversy between railroads and their employees has not been settled, and that the successive victories won by organized labor in this field, as a result of their employment of the methods of compromise through arbitration, is bringing more and more strongly to the front the necessity of reaching some permanent basis for adjusting these differences which shall remove this perennial cause of disquiet and disturbance.

The European Situation.

THE foreign situation is not encouraging. The Balkan War drags its way along and the prospects of settlement are not, at this writing, bright. The United States is affected by this situation because of the continued drain of gold into the European banks and the general hoarding throughout Europe by way of provision against possible trouble. In France, Germany and Austria, hundreds of millions of gold has been hoarded which will not be released until the situation in southeastern Europe has been definitely cleared up. This makes for higher money rates and is responsible for the exportation of gold from the United States which has recently been in progress.

The Mexican Situation.

THE Mexican situation does not, apparently, cause much uneasiness. It is believed that with the return of representatives of the Diaz regime to power, the wide-spread brigandage which is now perilizing business activity throughout Mexico will soon disappear, and the reign of law and order, even though secured under a military despotism will be reestablished. The events of the last two years have proven that the Mexican people have no conception of liberty as that word is understood in the United States. Liberty with them, under a mild central government, means license to pillage and destroy. The re-establishment of the military regime, will, it is believed, secure peace in Mexico for many years to come.

Corporate Financing During January.

IN spite of the unfavorable outlook in the securities market, corporate financing in the United States during the month of January reached the record total of $355,000,000. In but three months of last year did the total

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financing go beyond $200,000,000. This is extraordinary, in view of the fact that the prices of securities are about at the lowest figure reached since the 1907 and 1908 depression. The railroads are responsible for the increase. Out of the $355,000,000 total financing for the month the railroads did nearly $200,000,000 using a 4½ per cent bond or a higher yield bond, note or stock.

Bond Prices.

BOND prices have not generally continued the advances which began with the outset of the year in response to lower money rates. The average price of 25 bonds is now ½ a point above the closing price for December. The average for January, 1913, on the basis of the figures compiled by the Wall Street Journal, was 89.1. In January, 1912, the average was 90.9; in 1911, 91.4; in 1910, 92.8; and in 1909, 93.7. Declines during the past year have been general in the very best class of bonds. Atchison General 4s, for example, declined 1¼ points; Northern Pacific 4s, 2⅛; Reading General 4s, 1⅛; Southern Pacific Refunding 4s, 2; Union Pacific First 4s, 1¾. Low grade bonds are much depressed, although they are selling above their low prices for 1912. Chicago & Alton First Lien 3½s, for example, have advanced 2¾ points from the low point of 1912. Denver & Rio Grande First and Refunding 5s, 2¾; Seaboard Adjustment 5s, 2¼; Missouri Pacific First and Refunding Convertible 5s, 3¼. At present prices the yields on most of these bonds ranges from 6 to 7 per cent.

The Attitude of the English Investor.

THE attitude of the English investor towards our railroad securities is significant. Treating of our railroad bonds the "Financial Times" of London, explains the decline since 1907, in the face of the fact that the security of nearly all bonds has improved on the basis of the earning power of the properties which secure them, by the general advance in the rate of interest all over the world, and it points out that the advance in interest rates due to the growing pressure upon the money supply still continues. This authority also finds a local cause for the depression in bonds in the proceedings of the Pujo Committee. Upon this the following comment is made: "If restrictive legislation is to be proposed as the outcome of this inquiry, it would be extremely hazardous to guess at this juncture the lines upon which it could be framed, but there is a growing notion that something definite of the sort is projected and the effect upon markets is depressing. In this depression even the best bonds share, and the best bonds are, of course, the securities which in the long run have nothing whatever to fear from the outcome."

Recent Large Offering.

IN spite of certain pessimistic conclusions as to the future of the bond market, the railroads, as just remarked, are coming into the market with large offerings. The Seaboard Air Line Railway has sold $6,000,000 three year collateral 5 per cent notes, which will increase its interest charges $300,000 a year. Last year's surplus over all charges was $899,266, and for the first six months of this year net operating income, after taxes, increased $113,000. The interest obligation on these new securities will be earned three times over. It has been two years since this company has done any financing except for the purchase of new equipment. The present issues are secured by the refunding 4 per cent bonds of 1959. These bonds are not offered directly, since their price has declined 5 points since they were first brought out. The Seaboard is making steady progress toward a sound position but it will be several years before it will be in a position to pay any dividends on its stock.

The Boston & Maine has sold an issue of $10,000,000, 5 per cent one year notes dated February 3d, which are offered to the public on a basis of 4¾ per cent. Of the proceeds of the new notes about $5,000,000 will be used to take up the company's share of the new Maine Central's stock, and the balance to take up maturing note issues. The company is now fully prepared to take up the $12,000,000 of 4 per cent notes sold last June.

The financial plans of the Baltimore & Ohio are likely to be delayed by legal proceedings to determine whether the Public Service Commission of that State has authority over the security issues of the railroads. The railroad company claims freedom from the Commission's control by virtue of special privileges contained in its charter of 1827, while the Commission insists that the Baltimore & Ohio must ask authorization for security issues like any other public service corporation. Involved in the question is the possibility to set aside the tax exemption which the Baltimore & Ohio enjoys in the State of Maryland, and which has been estimated to be worth $500,000 annually to the company. An amendment to the State Constitution adopted in 1890, provides that any corporation enjoying exemption from taxes which avails itself of any favor from the State through general or special laws shall forfeit the tax exemption. The question has been raised by the underwriting bankers, who have formed a syndicate to take the bond issue, and who have been advised by counsel to have the matter of the legal status of these bonds definitely cleared up. It is expected that the matter will be forced to an immediate issue.

The Norfolk & Western has announced an issue of $19,000,000, 20 year 4½ per cent convertible bonds. These will be offered to stockholders of record as of February 17th, who will be allowed to subscribe to the new bonds to the extent of 15 per cent of their stock holdings at a price of 102½. The new bonds will be convertible into common stock at par, at any time between September 1, 1913, and September 1, 1923.

An interesting feature connected with these convertible bonds, of which six large issues have been announced since the first of the year, is the sharp decline in the value of the related stocks, notwithstanding that in four cases the "right" of small value attached to the subscription. American Telephone stock has declined 5⅜; St. Paul, 2; Baltimore & Ohio, 1⅞; Norfolk & Western, 3¼, and M. Rumely 9½ per cent.

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The explanation of this decline is found in the fact that these issues were, without exception, offered to stockholders and the effort to secure $178,500,000 in this manner naturally exercised a depressing influence upon the stock.

Effect of Dissolution Upon Southern Pacific.

THE "Chronicle" of February 22d, contains an interesting analysis of the effect of the dissolution order upon the Southern Pacific, which is of especial importance in view of the sharp decline in the value of Southern Pacific stock. The Southern Pacific will lose the income represented by the Central Pacific dividends, and in return, will receive $104,189,941. The question to be answered in determining the effect of the separation upon the Southern Pacific is whether this money will result in an income return equal to the return now received on these shares. The "Chronicle" does not believe that the Southern Pacific will lose anything by the exchange. The total return on Central Pacific stock is now $4,728,530. If the money received in exchange for this stock is employed to return 4½ per cent to the Southern Pacific, the yield will equal the amount of the loss from giving up the dividend. It is reasonably certain that the returns of the Southern Pacific from the employment of this money will far exceed 4½ per cent. Practically, the entire surplus of the Central Pacific, over expenses and fixed charges, was paid to the Southern Pacific as dividends. An interesting point, noted by the "Chronicle," is the fact that the payment of this immense sum of money to the Southern Pacific will relieve that company of the necessity of new financing for a long time to come.

Railway Earnings.

THE number of statements of railroad earnings which have been made is so large that space does not suffice for more than a summary of each report.

Atchison, Topeka & Santa Fe.—After providing for the six months' dividends on the common stock, the company earned $4,500,000 estimated surplus.

Central Railroad of New Jersey.—This company has earned a balance for dividends of $4,704,256 in the first half of the current fiscal year. It is the largest in the company's history, exceeding 1912, the next highest year, by $689,200. This surplus is $1,400,000 above the dividend requirements for the full year.

Chicago & Alton.—For the six months ending December 31st, the Alton showed a deficit after all charges, of approximately $73,700. This showing is primarily due to heavier maintenance expenses which have resulted in marked improvement in the property.

Chesapeake & Ohio.—This company showed a moderate increase in gross earnings for the first six months, but a reduction in net operating income of $200,000 due to higher operating expenses and taxes.

Chicago & Northwestern.—In the last fiscal year the company earned 7.5 per cent on its common stock. In six months of the current year it has earned 6.4 per cent on the common stock over the half year's fixed charges and preferred dividend requirement.

Chicago, Milwaukee & St. Paul.—During the first half of the current fiscal year the combined income accounts of the St. Paul and the Puget Sound roads showed estimated earnings of 7.25 per cent on St. Paul's common stock, about five times the amount reported as earned on the common for the entire year ending June 30, 1912.

Delaware & Hudson.—This company earned about 12 per cent on its $42,500,000 of stock. This was a slight reduction from the preceding year, explained by the losses due to the cessation of mining operations and to the increase in maintenance charges.

Denver & Rio Grande.—The net earnings of the Denver & Rio Grande for the six months ending December 31st, increased $812,000 over the corresponding period of 1911.

Great Western.—Net earnings for the six months ending December 31st show a gain of $239,378 which is 13½ per cent increase. The total indicated surplus for the six months is $885,960 over fixed charges and taxes.

Illinois Central.—As a result of considerable savings in operating expenses, the Illinois Central was able to show an increase of $933,251 in its surplus over dividend requirements. Last year the company showed a deficit of $931,494, and this year a surplus of $1,757.

Kansas City Southern.—This company shows a gain of $480,000 for the six months period ending December 31st, over operating expenses and taxes.

Lackawanna & Western.—The Delaware, Lackawanna & Western Railroad Company shows a surplus available for dividends for 1912 of about $832,000 less than in 1911. The company has, however, earned approximately 36 per cent on its stock.

Lehigh Valley.—For the six months, this company shows a gain in net earnings of $1,132,532 or more than 18 per cent.

Louisville & Nashville.—This company shows a decline in net earnings for the six months ending December 31st of $709,000, explained by increases in maintenance expenses which were relatively larger than those of any large company.

Minneapolis & St. Louis R. R. Co.—The operations for the fiscal year ending June 30, 1912, show a deficit of $667,041, a decrease of $726,897 from 1911

Missouri Pacific.—For the first six months of the current fiscal year, Missouri Pacific has made the remarkable gain of $2,509,032 in the surplus available for dividends.

New York Central and Affiliated Lines.—For 1912 the total New York Central system shows a gain of $7,223,746. The net earnings of the New York Central Railroad proper, show a small decrease.

Pennsylvania.—The Pennsylvania Railroad system, including all lines East and West of Pittsburgh, shows a gain of $6,690,906 in net operating revenue.

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Norfolk & Western.—The Norfolk and Western in six months ending December 31, 1912, showed a net income of $6,083,069. a gain of $1,100.937 over the corresponding period of 1911.

Northern Pacific.—Northern Pacific shows for the first six months of the current fiscal year, an increase in net operating income of $1,945,-413.

Reading.—In the first half of the current fiscal year, Reading earned 9.7 per cent on the common stock, after providing for the full year's dividend on the first and second preferred. In the same period a year ago, 2.6 per cent was earned.

Rock Island.—The Chicago, Rock Island & Pacific Railway Company increased nearly $1,-000,000 in its balance available for dividends.

Seaboard Air Line.—Seaboard Air Line, for the six months ending December 31st, shows an increase in net earnings from operation of $113,178.

St. Louis, Iron Mountain & Southern. — The St. Louis, Iron Mountain & Southern surplus over charges, for the six months ending December 31st, increased $682,719 or 87 per cent. This was done after spending $643,000 more upon maintenance and allowing for an increase of $193,000 in fixed charges and taxes.

Wabash, Pittsburgh Terminal.—Six months' earnings of the Wabash & Pittsburgh Terminal were only $65 965 over operating expenses.

Fifty-eighth Annual Report of the Northern Central Railway Company.

THE past year showed little change over 1911 in the results achieved by the Northern Central. The gross operating revenues for the year showed an increase of $98,894, chiefly in the passenger traffic. The freight revenue decreased $60,665. This was explained by the suspension of anthracite coal mining operations in the spring of 1912 and further by the fact that connecting lines, from which the company derives a large tonnage, established Newberry Junction and Wilkes-Barre as interchange points instead of continuing to use the Elmira and Canandaigua gateways. This resulted in a considerable reduction in tonnage and in the length of haul. The company was able to offset these losses in large part by making substantial increases in the merchandise and general freight traffic but the smaller train loads and faster movement required for this class of traffic increased the operating expenses.

The principal increase in operating expenses was in maintenance of equipment whose cost was $97,796 greater than in 1911. The new income for the year was $1,825,433 a decrease of $30,635 as compared with 1911. Of this amount, after paying the regular 8 per cent dividends and the contributions to the various sinking and reserve funds, a balance of $250,688 was transferred to the "Reserve for Additions and Betterments."

President Samuel Rea, who succeeded President McCrea in charge of the Northern Central, in connection with the statement that the expenditures for construction, equipment and real estate aggregated $685,632, stated that it would be necessary to further improve and enlarge the tracks for facilities for local and through traffic in Baltimore.

But little progress has been made in the litigation which has interfered with the consummation of the lease of the company's property to the Pennsylvania Railroad Company. Various actions have been begun and some of these are still pending while others have been abandoned. It is possible that an outcome of this litigation unfavorable to the company may make it necessary to reconsider the provisions of the proposed lease.

Colonel Goethals Honored by New York Engineers.—On January 27th, the eve of his return to Panama, Col. George W. Goethals, chief engineer of the Panama Canal, was the guest of honor at a dinner given in the Hotel Astor by the Lehigh University Club of Greater New York.

More than four hundred engineers, scientists, and men of affairs of New York City and vicinity were present. The speakers were Dr. Henry Sturgis Drinker, president of Lehigh University; Col. Goethals, Rear-Admiral R. E. Peary, John Hays Hammond, and Ira A. Place, vice-president of the New York Central Railroad.

A letter from President Taft was read by Dr. Drinker, in which the President expressed regret at being unable to attend the dinner, paid tribute to the work of Col. Goethals at Panama, and referred to his recommendation to Congress, "that Col. Goethals receive as a reward for his services the rank and pay of a major-general in the army."

In his address of welcome in behalf of the Lehigh University Club of Greater New York, Dr. Drinker briefly reviewed the tremendous task which has been so successfully accomplished under the supervision of Colonel Goethals and paid a glowing tribute to all those identified with the work. He said:

"The Panama Canal signalizes the success of a great engineer, supported by most able and devoted men, who have shown the world in this twentieth century a triumph of engineering skill and of scientific management over difficulties that appeared to be insuperable."

Among the guests of the Lehigh Club at the banquet were: Rear-Admiral R. E. Peary, John Hays Hammond, J. A. Bensel, Ira A. Place, vice-president New York Central and Hudson River R. R. Co.; James Gayley, of the United States Steel Corporation; J. J. Carty, chief engineer American Telephone and Telegraph Co.; Nelson P. Lewis, chief engineer New York City Board of Estimate; Prof. Frank P. McKibben, head of the Civil Engineering Department, Lehigh University; Dr. Mansfield Merriman, formerly Professor of Civil Engineering at Lehigh; Alfred Noble, Consulting Engineer; Wm. H. Hulick, president Lafayette College Club of New York; J. Waldo Smith, Engineer New York Board of Water Supply; Wm. R. Willcox, chairman New York Public Service Commission; President A. C. Humphreys, of Stevens Institute of Technology; the Trustees and Faculty of Lehigh University.

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Operation

The Crusade for Greater Safety.

"SAFETY FIRST" continues to be the most interesting and noteworthy movement in the field of railway operation. This tremendous crusade, limitless in its possibilities, which was inaugurated some two years ago has spread to practically every important system in the country and is being exemplified in countless innovations. The work of promoting safety, which was necessarily experimental in the beginning, is now being rapidly reduced to system and order and is being carried on with the precision and effectiveness of the older forms of railway work. One of the most notable features of the month has been the appearance of safety magazines or booklets on a number of important systems, copies of which are circulated not only among the employes of the issuing company, but among a considerable number outside of railway circles.

New York Central's Safety Campaign.

ONE of the most effective and interesting of these special publications is *"Safety,* a periodical of progress and protection," issued by the New York Central Lines Safety Committee. It is intended that this publication shall appear monthly. Every employe who could read English received a copy of this magazine, which is attractively gotten up and contains a number of interesting illustrations, two of which are herewith reproduced. The magazine is written in a snappy and interesting style, so as to preserve the interest of the reader, and the advice which is given is put forth in such a way as to make it stick in the mind. Railway officials will watch with interest the effect of this publication.

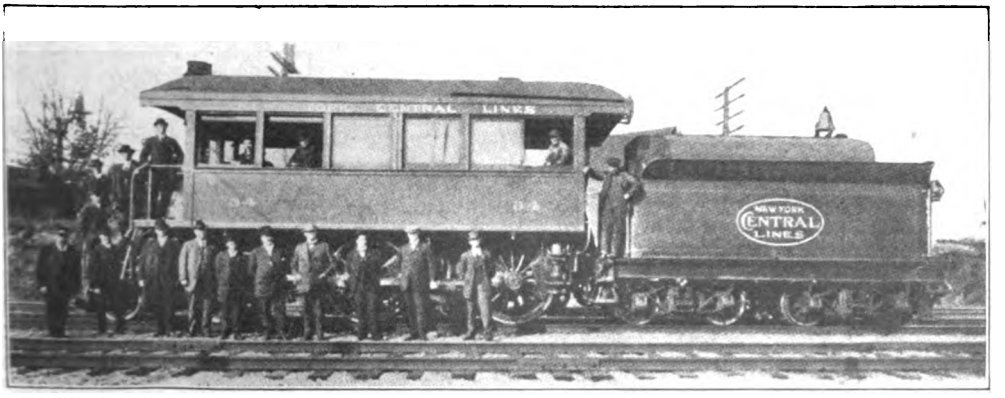
The New York Central System now has sixty safety committees, consisting of about 900 members, at work on this problem. About 500 new items on an average are taken up for consideration each month. The Safety Department has asked each member of the several committees within thirty days to do three things—first, explain to at least three men in his own branch of the service the purpose of the safety movement; second, to impress upon them the importance of the safety rules and regulations; to call their attention to the unnecessary risks which are taken by men in their branch of the service and the possible consequences which arise therefrom, and third, to get each of them to promise that he will in turn talk to three other men along the same lines.

Safety Work on the Pennsylvania.

THE Pennsylvania lines have likewise prepared a booklet which will shortly be distributed to their 85,000 employes, designed to lead to greater care in the performance of daily tasks. The booklet is filled with suggestions of the methods by which each employe can best look out for his own safety and can guard the safety of his fellow employes. The men are urged not only to exercise care themselves, but to warn others of danger "and to discourage acts of recklessness on the part of those who, by reason of their inexperience or their familiarity with their work, fail to take proper precautions for the safety of themselves, their fellow employes or the traveling public."

Safety rallies have been held during the last month at a number of points on this system. A large rally at which over 500 employes were present was held in the Auditorium at the Pennsylvania Terminal in New York City. A number of stereopticon views were shown to illustrate the right and wrong way of performing ordinary duties and to show some of the needless dangers which are daily run by employes. Another large rally was held in the Lyric Theatre at Baltimore, to which employes and officials of the various roads operating in Maryland were invited. A number of special trains were run over the various divisions of the Pennsylvania to bring to Baltimore the employes who desired to attend. Five-minute addresses were made by representatives of each branch of the service on various practical matters connected with the movement, and as a concluding feature a stereopticon exhibition was given, illustrating some of the important rules of the company.

Particular attention is being paid to the problem of trespassing on the lines of this system. The reports of accidents to trespassers are being



SAFETY COMMITTEE, MIDDLE DIVISION OF THE MICHIGAN CENTRAL RAILROAD ON INSPECTION TRIP.

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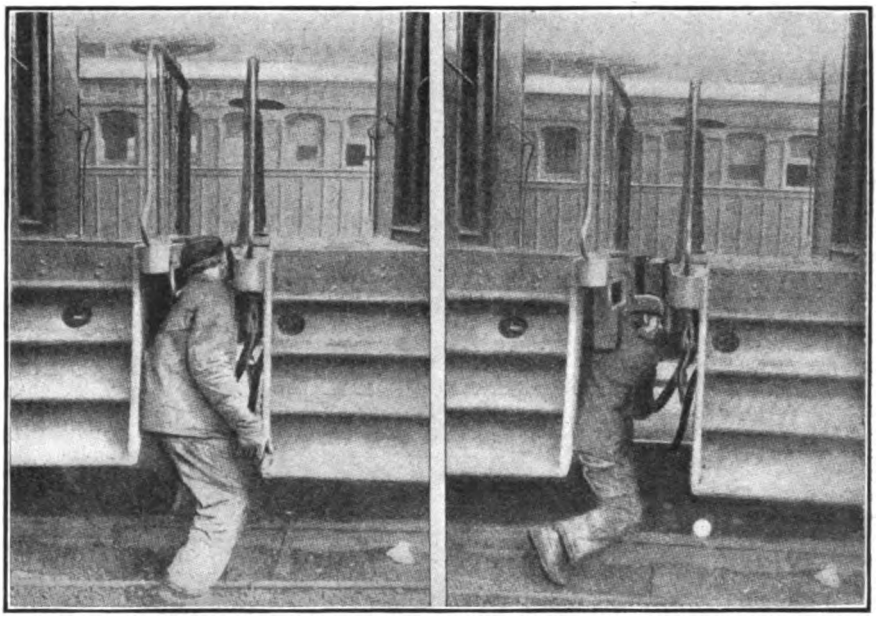

AN UNSAFE WAY OF UNCOUPLING AIR BRAKE HOSE—HEAD BETWEEN PLATFORMS.

A SAFE WAY OF UNCOUPLING AIR BRAKE HOSE—HEAD CLEAR OF PLATFORMS.

carefully scrutinized and every effort is being used to impress upon the communities scattered along the lines the importance of avoiding railway tracks.

Improvements in Signal System to Increase Safety.

AS a feature of its "safety first" movement the Pennsylvania has directed attention to the problem of preventing mistaken readings of signals by locomotive engineers through confusion arising from other lights too near the signals. Wooden or metal shields, painted an appropriate color to bring out the semaphore arms in the daytime, are being placed at various points where the background is of such a color as to make signals indistinct. In the same way lights on the railway right-of-way, or on adjacent buildings, public roads or bridges either in the near vicinity of signals or which get in the line of vision of engineers endeavoring to read signals are either being removed or provided with shields so as to eliminate the possibility of error. In addition at some points, as for example, Lewistown Junction, Pa., small signal lights have been attached directly underneath the main signal which will show "red" at all times, thus making it possible for the engineer to pick out the proper "white" light in case the track is clear.

Preventing Children from Playing About Cars.

ACCORDING to Mr. N. L. Howard, of the Burlington System, one of the greatest sources of injury on railroads is the carelessness of parents and the tolerance of railway officials in allowing children to play about standing cars on sidings and in yards; "to-day some where in this country two or three little children have been killed playing around tracks or cars, so it was yesterday; so it will be to-morrow, and so it averages, day in and day out through all the year. All that we railroad men can do about it, however, is very little; children continue to come every day to our yards to play * * * * too often to meet with disaster because it is impossible for us to keep an eye on every one of them or keep them away. It is bad enough to run over grown up trespassers, but cannot something be done to stop killing children?"

That Mr. Howard does not overstate the condition is beyond dispute. The California Railroad Commission, for example, points out in its accident report that twenty per cent of those killed within that State were children who were crushed under the wheels while playing on the tracks. While it is possible that this percentage is higher than in some States yet the compilation is most significant. THE RAILWAY WORLD suggests to railway managers that they can with profit extend their safety work to the public schools, as has already been done by the street railways. A forceful exhibition of moving pictures and stereopticon slides will have a powerful effect upon the impressionable minds of children and will furnish perhaps the best method of educating the public at large within the space of a few years to the importance of avoiding railway property.

Thoughtlessness as the Breeder of Accidents.

"SEVENTY per cent of accidents are avoidable and are generally caused by thoughtlessness," is the conclusion of Mr. S. W. Atkins, claim agent of the Boston and Maine Railroad. Thoughtlessness is daily apparent, as he points out, among the employes in every branch of the service, among shippers, the traveling public and the people who reside along the lines; in fact every class in the community is affected by it. "My investigation of these accidents leads me to conclude that railroad men are not thinking about them, but are rather trying to keep them out of their minds as something unpleasant to think

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about; consequently are giving little or no thought to the prevention of accidents. * * * * I fear the attitude of the railroad man of to-day is to take a chance. He many times gets by but the time comes when he does not. I find men coupling up air hose where cars are being kicked on to the train, stepping on the pilot of the engine when the engine is coming toward them, using a broken knuckle rather than take the time to put in a new one, riding on side ladders, pushing the draw bar over with their feet when the cars are almost together; jumping from a moving train to cars that are standing on a side track, and doing so many desperately careless and foolish things that I would be ashamed to mention them were they not occurring over and over again and resulting in most serious accidents."

Safety Work on the Erie.

ONE of the interesting developments in promoting safety is the recent order of the Erie Railroad Company calling attention to the occasional but very dangerous laxity which has grown up in the flagging of trains. The company points out that "the man who flags trains is a protector of human life and property if he flags conscientiously; he becomes a protector only when he goes back a sufficient distance. Standing near the rear end of a halted train with a flag or lantern in hand is not flagging; it is criminal negligence and the company regards it in no other light. Obey the rules to the letter * * * * never mind about the engineer's whistle calling you in. If you get left it is of less importance than if you caught the train and disobeyed the rules."

Safety Work on Mobile and Ohio.

THE Mobile and Ohio has recently inaugurated an extensive safety campaign. In addition to organizing the conventional committees the principal officers of the company, including the vice-president, the general manager, the general superintendent, the general counsel and the chief surgeon, have visited each point of importance and discussed with employes questions connected with safety in operation.

Santa Fe's Moving Picture Demonstration.

MR. ISAIAH HALE, Safety Commissioner of the Santa Fe System, has completed plans for free entertainments for employes of the company which will include moving pictures, music and talks on "Safety First." The moving pictures will show how wrecks and accidents in shops and yards occur as results of carelessness. The company realizes that the effect of these pictures will depend on the care exercised in their selection and preparation. Efforts are being made to procure typical illustrations of mistakes, and to show clearly not only the "wrong way," but what is more important, the "right way" in which a particular piece of work should be handled. It is planned to make the pictures the ground work for the "safety" talk.

Home Conditions of Employees and the Safety Problem.

THE New Haven System has called the attention of its employes to the effect of home conditions upon the probability of accident to railway men. It is pointed out that a man who in going to work slams his home door behind him in anger is in no fit frame of mind to run an engine or operate a signal tower. This is one of the first instances of the recognition of the psychological aspects of the safety problem which can be very much further developed with profit.

President Miller Drafts Trespass Law.

PRESIDENT DARIUS MILLER, of the Burlington System, has prepared a draft of a proposed law to prohibit trespassing on railroads at the request of the California State authorities which is to be submitted to the governors, legislatures and railroad commissions of the various States in which this system operates. The penalty provided for trespassing in the proposed law is a fine of not less than $10 nor more than $100, or imprisonment in jail for a term of thirty days, or both at the discretion of the court.

President Mellen to Confer with Employees Every Month.

PRESIDENT MELLEN, of the New Haven System, announces that he will meet the representatives of the men once a month "to devote a day to them if need be, to receive their suggestions, the results of their observations, and to profit by them I hope to our mutual advantage. I can ill spare the time, but I know of no better use for it. I believe there must be better co-operation on the part of officials and labor organizations, or the results will be worse for both. I am earnestly desirous of promoting that closer co-operation by all means in my power."

Safety Work on the Baltimore and Ohio.

ALMOST interesting account of the scope and method of safety work on the Baltimore and Ohio System was given by Mr. J. W. Koon in a paper read before the New York Railroad Club at its regular meeting on February 21st. Mr. Koon described the general organization of the work on that system, and the manner in which the work is conducted. He analyzed the various causes of train accidents on his system and showed what was being done in each direction to reduce or eliminate these accidents. An interesting feature of the work, as described by him, are the "observation tests"—sometimes improperly called "surprise tests." * * * "Each division is required to make not less than a given number of tests. For example, a clearance card is made to show the wrong engine number or incorrect date to see if the crew are alert and detect these errors. A train order is improperly repeated to see if the dispatcher or operator is vigilant. A signal light is removed or a signal improperly displayed to see if the rules requiring trains to stop under those circumstances are observed. These are not "surprise tests"; they are limited to conditions met with every day and no "catch" features are permitted or anything that endangers life or limb, but they enable one to locate the careless man *before* an accident occurs. * * * * The value of these tests cannot be overestimated. In fact I would advocate the appointment of one or more men thoroughly familiar with railroad operation whose business it would be to see that these tests were properly made, proper record kept and failures followed

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up. Let the inspector get on a freight train and ask the brakeman under what orders he is running to see if he goes over the train orders and is fully informed. Let him examine the lanterns to see if torpedoes are attached, that they are clean and ready for instant use. Let him talk to the men as to what constitutes proper flagging, etc."

Mr. Koon pointed out with great pride that not a passenger has been killed on the Baltimore and Ohio System in a train accident in the last five years, during which time over 85,000,000 people have been carried. He stated that the real problem was to get the employes to be as careful of themselves as they were of their passengers.

The Accident Roll.

FORTUNATELY it is not necessary to chronicle many accidents during the month—in fact judging only from the standpoint of those accidents which resulted in loss of life, the month was singularly free from such losses.

The most serious accident was that which occurred on the Illinois Central, near Melvin Station in Ford County, Illinois. While a limited train was running at forty miles an hour speed five steel coaches of the train jumped the track, three of which rolled down an embankment. The accident was presumably due to the breaking of a rail. Twenty-six persons were injured but none were killed; among the injured were a number of prominent members of the Illinois Legislature.

The Buffalo Flyer on the Pennsylvania Railroad was derailed on January 17th near Lock Haven, Pa. A boulder which had rolled down the mountain side and which was not observed by the engineeer in time to stop, ditched the entire train except the rear sleeper—the baggage car, steel combination car and a steel day coach were turned over and rolled down an embankment. One of the sleepers was derailed but remained upright. It is remarkable that the seriously injured was confined to the express messenger; there was a considerable number of passengers in the day coach.

Another accident of the month occurred on the Michigan Central lines in Chicago on February 1st. The accident was caused by a switch engine which ran past danger signals onto a main track upon which the "American Express" was approaching. The collision demolished both locomotives, injuring the engineers and firemen of each. No injury to passengers resulted.

Accidents in 1912.

VARIOUS State commissions have, during the past month, issued their annnal compilation of accidents occurring within their respective jurisdictions during the year 1912. The Up-State Commission of New York reports that 871 persons were killed and 4,340 were injured on the steam roads of the State during the year ended June 30, last. Three persons were killed and forty injured by accidents of various kinds to locomotive boilers. The Commission comments upon the fact that there have been no boiler explosions in the State during the five years during which the Commission has had jurisdiction over locomotive boilers; this record is considered remarkable in view of the fact that there are over 6,000 constantly in use within the State.

According to the Pennsylvania State Railroad Commission, 1,179 persons were killed and 11,300 were injured on steam railroads in the calendar year 1912. These figures indicate an increase of 65 in the number killed and 2,585 in the number injured over the preceding year. Of those killed in 1912, 452 were employes, 28 passengers, and 583 trespassers. The number of grade crossing fatalities was 101, with 257 injuries. Of the total number of persons injured within the State last year over 80 per cent were employes.

In Oklahoma during the fiscal year ending June 30th, last, 113 persons were killed and 1,102 injured on steam railroads. Of the total number of fatalities in this period only four were represented by passengers.

Increasing Freight Car Efficiency.

MR. ARTHUR HALE, general agent of the American Railway Association, in a report to Chairman Lane, of the Interstate Commerce Commission, made public February 8th, declared that the increased efficiency in the handling of freight cars which had occurred during the last six months has been "equivalent to an addition of more than 150,000 freight cars to the equipment of American railroads." The investment required to provide this number of cars would aggregate one hundred and twenty million dollars.

It is apparent that in spite of this encouraging showing railway managers are looking forward to a still greater increase in freight car efficiency. Mr. W. H. Williams, third vice-president of the Delaware and Hudson Company, has prepared and submitted to railway officers through out the United States for their criticism a plan which is intended to bring about economies in settling claims for the use of equipment between railroads. He proposes the establishment of a general clearing house to be known as "The American Railway Clearing House," and of a number of district clearing houses. Through the use of these clearing houses whose organization and operation is very similar to that of the bank clearing house, a large part of the expense and work incident to the settlement of interline freight, passenger, per diem expenses, car repairs, etc,, will be eliminated. Mr. Williams estimates that these items aggregate about $90,000,000 and call for approximately $40,000,000 of checks, drafts and cash.

Mr. J. M. Daily, general superintendent of transportation of the Illinois Central, has suggested a more comprehensive plan than that outlined by Mr. Williams. He advocates the pooling of freight cars as the means of preventing empty movement and to obtain greater efficiency from equipment. He states that the recent increase in the per diem rate from 35 to 45 cents per day has stimulated the empty movement of cars which is a waste to the owners and to the country at large. The necessity for this practice would be eliminated by "car pooling." Mr. Daily believes that if the railroads had more cars they could not advantageously use them because of lack of terminal facilities. He declares that "car efficiency is dependent on terminal track facilities, ample team track and an adequate supply of locomotives to permit of prompt movement of the cars. It also depends on the co-operation of the shipper and the consignee in prompt loading and unloading. * * * * The records of the last three months on eighty per cent of the railroads showed that

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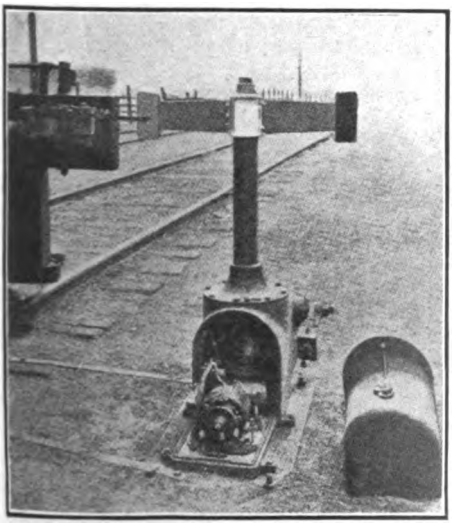
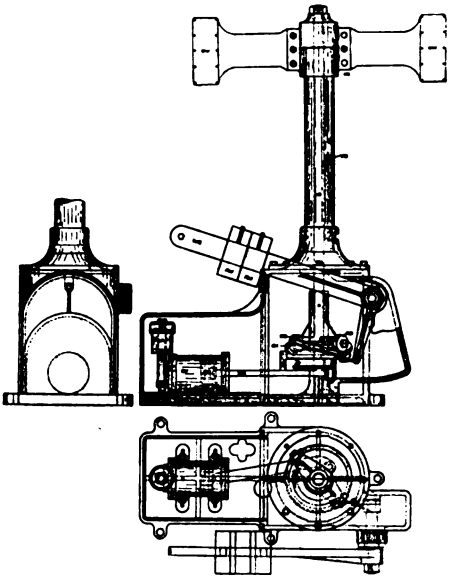
they had all the cars that could be handled to advantage either for want of additional yard and terminal tracks or for want of additional locomotives to move them. Had such railroads been able to obtain all the cars ordered as required for loading, it would have created a serious congestion, which would have resulted in the railroads moving less traffic than they did. It is necessary to provide facilities to promptly handle cars, then engines to move them, then shops and round houses to take care of the engines, and last to purchase the cars."

Report of Block Signal and Train Control Board.

THE final report of the block signal and train control board to the Interstate Commerce Commission, which has recently appeared, contains most interesting data concerning the results of the experiments conducted by this body. Since the organization of the Board in July, 1907, 11,046 devices and systems intended to promote the safety of railroad operation have been submitted for its consideration. It is interesting to note that as was to be expected, practically none of these devices have stood even the preliminary test and have therefore been discarded. In its final report, the Board states that there is nothing of importance to add to its previous report concerning the block signal problem. The greater portion of the final report is taken up with a discussion of the automatic train stop question. The report states, that at the time of the preparation of this report (June, 1912) there was in progress tests of the Gray-Thurber automatic train control system, on the Pennsylvania lines west, and the Jones Signal Company's device on the New York Central near Niagara Falls. The Board expressed the hope that tests of other devices will be undertaken in the near future by the same or other railroad systems, but considerable proportion of the report was taken up with the discussion of the rail-breakage problem, and the methods of improving track structure. The report states that the Board has devoted considerable time to the investigation of various designs of ties intended as substitutes for wooden ties. It is the opinion of the Board that both the steel tie and the concrete tie are questions for the future, and that much experimenting must be done before a satisfactory form can be evolved.



ELECTRIC MOTOR TRACK DEVICE, WITH COVER REMOVED AND WINGS IN STOP POSITION; CALHOUN ENGINE DEVICE, WITH ENGINE ARM IN CONTACT WITH TRACK DEVICE.



ELEVATION AND PLAN OF ELECTRIC PNEUMATIC TRACK DEVICE.

Perhaps the most interesting portion of the report is that dealing with the investigation of automatic train stops. The Board confines its discussion largely to two types of automatic control which have shown sufficient merit in preliminary tests to warrant, in the opinion of the Board, further consideration. The first of these devices is the Calhoun engine device, the general character of which is shown in the accompanying illustration. This device, it will be observed, has an automatic mechanical trip attached to the buffer-beams of the locomotive in such a manner that a spring contact arm, normally extended horizontally from the buffer-beam and at right angles with the track, is tripped by a vane of the track device, when a danger signal is set. The tripping of the contact arm applies the air brakes and brings the train to a stop. This device was given a series of successful tests on the Chesapeake Beach Railroad. The construction and operation of this device is described in detail in the report of the Board. The Board also describes in detail an electro-pneumatic track device, which is likewise shown in an accompanying illustration. It will be seen that this system might be worked with the Calhoun engine device or any similar method of automatic stop. Several types of electrical-pneumatic devices are discussed, all of which, however, are generally similar in character. None of these gave a perfect performance under all conditions in the preliminary tests.

The final conclusion of the Board, however, is

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that the Calhoun engine device and some of the electric-pneumatic track devices "if properly assembled and operated comprise an automatic train stop system, possessing sufficient merit to warrant a thorough trial under service conditions."

Car Surplus Increases.

ON February 15th, according to the American Railway Association's compilation there was a net surplus of 22,183 freight cars, as compared with a surplus of 28,439 on January 15, a decrease of over 6,000 cars. The gross surplus of idle cars on February 15th was 52,700. The open winter, which has prevailed practically throughout the entire country, has been responsible to a considerable degree for this surplus. Last year, when the country was experiencing unusually heavy weather at this time, the movement of freight was exceedingly slow which materially shortened the car supply, the net surplus on February 14, standing at 13,958.

Operating Reorganization of Harriman's System.

ALTHOUGH the formal plan of dissolution recently proposed by the management of the Union and Southern Pacific has not been formally approved either by the Circuit Court sitting in St. Louis, by the California State Railroad Commission, or by the security holders of either system, the work of revising the operating organization of the two roads is receiving serious and careful attention. On February 1st the Southern Pacific Company gave up its joint office with the Union Pacific in St. Louis and established an independent office with a new working force in temporary quarters in the Wright Building. This is in line with the general plan of abolishing joint agencies of the two companies. By a general order issued on February 2d, exclusive agencies were established by the Southern Pacific Company in New York City, Boston, Baltimore, Buffalo, Philadelphia, Pittsburgh, Atlanta, Birmingham, Chicago, Cincinnati, St. Louis Detroit, Kansas City and Denver. At each agency a special representative has been appointed.

It is currently reported in the newspapers that in addition to taking over the Central Pacific, as has been suggested in the official plan for the segregation of the two companies, the Southern Pacific will also take over the Oregon-Washington Railroad and Navigation Company's properties between Portland and Puget Sound. If this report should prove to be true, it would result in the Southern Pacific securing terminals at Seattle and Tacoma. It is doubted, however, whether this step would be assented to by the Union Pacific interests.

First All-Steel Train Across Missouri.

THE Wabash Railroad Company inaugurated, on February 26th, a daily service in both directions between Chicago and Kansas City of a solid all-steel train. This is the first all-steel train to be regularly run across Missouri. The train is scheduled to leave Chicago at 9 A. M., arriving at Kansas City at 5.20 P. M., while the train in the opposite direction runs on approximately the same schedule. Five days previously the Wabash inaugurated a daily service in both directions by solid steel trains between St. Louis and Detroit. Each train is composed of five cars: mail, combination baggage and smoker, coach, sleeper and cafe-observation car. The schedule provides that a train shall leave St. Louis daily at 8.30 A. M., arriving at Detroit at 8.45 P. M. In the opposite direction the train leaves Detroit at 9 A. M. and arrives at St. Louis at 9.30 P. M.

New Train Auditing System on Western Lines.

ARRANGEMENTS are being perfected by the Santa Fe, Rock Island, Monon, Alton, and Wabash roads to install a train auditing system on the work of the conductors on their passenger trains which is similar to that in force at the present time on the North Western and Burlington lines. Under this plan auditors are empowered to enter trains at any point and compare the number of passengers on the train with the record of the conductor. Each auditor is required to furnish the conductor with a statement of his audit.

New Developments in Sanitary Car Cleaning.

THE Chicago and North Western Railway has recently created a new office under the title of Sanitary Inspector in charge of Dr. C. G. Elmore, who is aided by a number of assistants. It is the duty of this bureau to investigate the sanitary condition of coaches and chair cars, giving particular attention to cleanliness and disinfection. The sanitary inspector will also hold conferences at frequent intervals with the foreman of various coach yards to discuss methods of effecting improvements and economies. A circular letter has been issued by the inspector directing that at the final terminal of trains all refuse must be cleared out, particular attention being paid to accumulations under steam pipes and radiators. Cars must be thoroughly scrubbed and disinfected, the interior carefully dusted, windows washed, drinking water tanks cleaned, and the exterior either "dry-wiped" or scrubbed according to weather conditions.

In the Pennsylvania's yard at Sunny Side, Long Island, where the equipment entering the New York Terminal is stored, over 11,000 cars are cleaned every month, according to a recent statement. This does not include the cleaning of the cars used in the local work on Long Island. Since the opening of the Terminal and of the Sunny Side Yards, the cleaning yard at Jersey City has been largely abandoned.

American Association Report.—Efficiency of freight equipment on railroads of the United States and Canada, as reflected both in the number of miles making up the average distance traveled per car per day, and in ton miles per day, reached the highest point in October ever attained, so far as records kept by the American Railway Association show. This bears out predictions made some time ago that October, the month of heaviest traffic, probably would set a new high record for freight car performance, largely in consequence of the campaign waged throughout the latter part of 1912 for prompt loading and release of freight equipment to forestall threatened car shortages.

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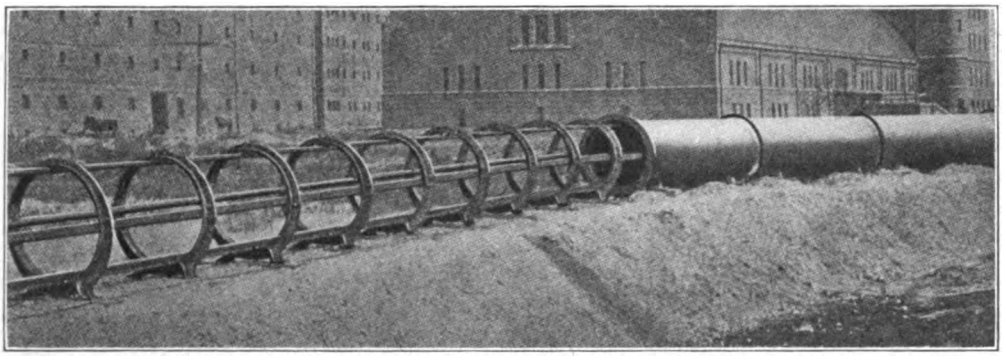
Mechanical

New Parcel Post Tunnel Railway.

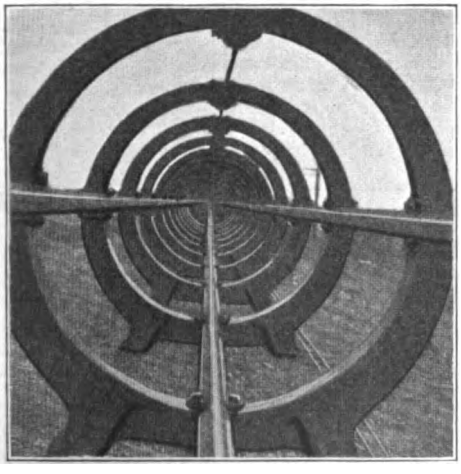
AN interesting development in connection with the recent inauguration of the parcel post, is an experimental installation at Cambridge, Mass., of a tunnel railway designed to demonstrate the possibilities of the rapid transportation of mail and parcels between railway terminals in large cities. The device is described in detail in a recent issue of *The Scientific American*.



Photograph from "Scientific American."

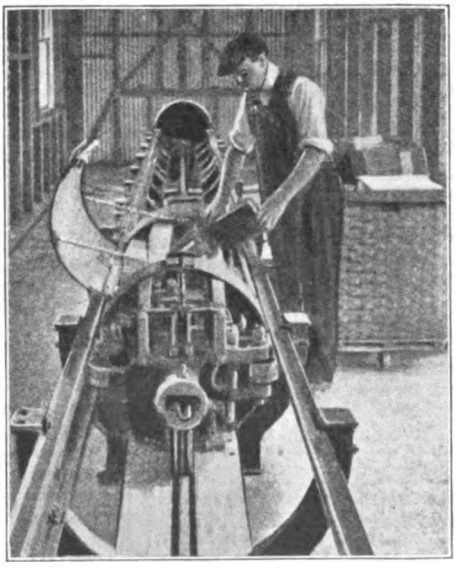
AN AUTOMATIC TUNNEL RAILWAY THAT CAN BE LAID UNDERGROUND OR ON THE SURFACE, IN WHICH CARS ARE PROPELLED BY ELECTRIC MOTORS, IN MUCH THE SAME WAY AS ORDINARY TROLLEY CARS, BUT WITH THIS DIFFERENCE, THAT THERE IS NO ATTENDANT ON THE CAR TO CONTROL IT.

In brief, it consists of a 30-inch diameter cast iron pipe, one-third of a mile in length, in which four rails have been laid—one on the bottom to support the car, one on each side to keep it in position, and an insulated conductor rail on the top. The pipe as laid, involves a turn of 90 degrees with a curve having a radius of 50 feet, and ascending and descending grades of five per cent. The car which runs through the tunnel is cylindrical in form, about 25 inches in diameter and about 7 feet 3 inches long. The carrying capacity is equivalent to six ordinary mail sacks. Careful records have been kept of the operation of the car, which is almost entirely automatic. The car is started through the tunnel by pushing it by hand until it comes in contact with the overhead insulated rail. When it reaches its destination, the power rail is broken, thus depriving the car of power. Braking is secured by wooden skids in the bottom of the tube, which are raised by a lever on the platform, at the will of the operator. The device will be given careful consideration by



Photograph from "Scientific American."

FOUR TRACKS ARE LAID ON THE SIDE OF THE RAILWAY, ONE AT THE BOTTOM TO SUPPORT THE CAR, ONE AT EACH SIDE TO KEEP IT UPRIGHT, AND A CONDUCTOR RAIL ON TOP.



Photograph from "Scientific American."

PLACING A PARCEL IN THE CAR. THE SPACE IS SUFFICIENT TO HOLD SIX ORDINARY MAIL SACKS, OR MANY PARCEL POST ARTICLES.

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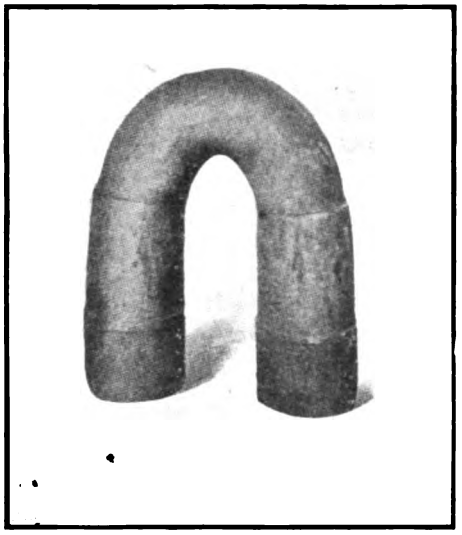
the Commission which has been recently appointed by the Postmaster General to investigate the feasibility and practicability of an underground tunnel between the new post office building located at the Pennsylvania station and the Grand Central Depot at New York City.

HEAT TREATED VANADIUM STEEL IN LOCOMOTIVE CONSTRUCTION.

MASTER mechanics, and in fact all those interested in the problems connected with locomotive construction continue to show keen interest in the question of the advantages of heat treated vanadium steel. Mr. A. F. Mitchell, superintendent of the treating shop of the Carnegie Steel Company at Monhall, Pa., in an adress recently delivered before the Railway Club of Pittsburgh gave a most interesting description of the way in which chrome-vanadium steel was heat treated for use in locomotive work, and the possibiilties from the use of such material. He exhibited in connection with this paper some photographs, one of which is herewith produced and which shows a vanadium steel locomotive main driving axle, ten inches in diameter bent cold without fracture. This piece of steel showed an elastic limit of 75,000 pounds per square inch and tensile strength of 100,000 pounds per square inch. This paper will be found of great interest to shop men and others who are engaged in treating steel of this character. One of the important points brought out in connection with the paper and subsequently discussed was the fact that the essentials of a successful heat treatment are not necessarily an expensive plant but depend upon a uniformly heated furnace, preferably gas or oil fired, of sufficient capacity to avoid bringing the piece of steel too near the bottom, sides, roof or fire to prevent uniform heating. Another point strongly emphasized was the necessity for a pyrometrical installation of sufficiently sturdy construction as not to be liable to get out of order under ordinary shop service. It was further emphasized that this installation should be frequently inspected in order that it shall always be in a good condition. The final point made by the speaker was that the work must, at all times, be under the supervision of a competent person who goes about his task in a scientific manner and through infinite pains turns out a uniform and satisfactory product.



VANADIUM STEEL AXLE, TEN INCHES IN DIAMETER BENT COLD WITHOUT FRACTURE.

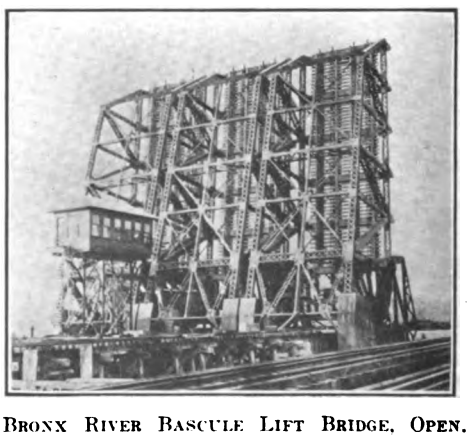
SUCCESSFUL MOTOR-OPERATED RAILROAD LIFT BRIDGES

A LARGE proportion of the railroad lift or draw bridges erected in the last few years where electric current is available, are motor operated. That motor drive is being adopted for this purpose is a significant fact because railroad bridges must be absolutely reliable in operation. Experience has proved that motors are fully as reliable as any other form of drive. They are more economical as there is no maintenance expense when the bridge is not being operated. The control of motors is far simpler than that of any other form of drive, and many protective devices can be installed.

Two interesting installations of motor-operated railroad bridges are those that carry the six tracks of the Harlem River branch of the New York, New Haven and Hartford Railroad over the Bronx and the Hutchinson rivers and over which approximately two hundred trains pass daily. These bridges have been in successful operation now for several years and afford an excellent example of the reliability of electric drive.

Each bridge is made up of three leaves; each leaf carries two of the six tracks. The Bronx River bridge (numbered 3.40) is near the Westchester Avenue station; the Hutchinson River bridge (numbered 7.73) is between the Baychester and Bartow stations. Both are the Scherzer type rolling lift bridges.

Since the channels spanned by these bridges are only about 100 feet wide, the rolling lift construction was adopted, because this type requires no center pier and involves no obstruction or widening of the channel. Illustrations show the three leaves of bridge 3.40 open, and a detail of the "ways" upon which one leaf rolls; bridge 7.70 is similar in construction. The number of daily



BRONX RIVER BASCULE LIFT BRIDGE, OPEN.

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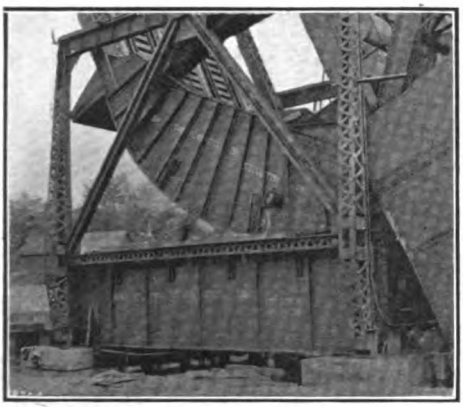


ROLLING WAYS AND METHOD OF CONVEYING CONDUCTORS TO MOVING PARTS.

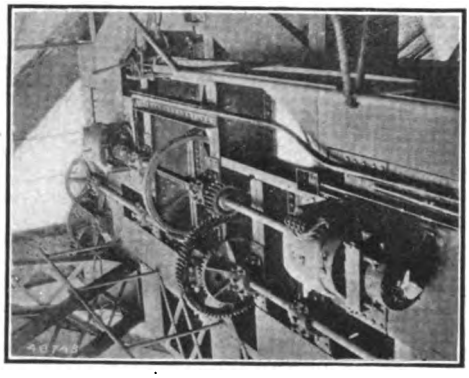
openings varies, averaging five in the case of bridge 3.40 during winter months and 12 during other months. The number of openings of bridge 7.73 is less.

Each leaf is operated by two Westinghouse 25 horsepower, 550 volt, direct current motors mounted on the moving leaf and geared to pinions which project from the side and mesh with racks on the stationary part of the bridge. Under ordinary circumstances the two motors on each leaf are operated together as one unit, but either can be controlled separately and either has sufficient capacity to move its leaf, although of course more slowly than if the two motors are working together. Both motors are provided with an electric brake and each leaf has a separate emergency brake.

The motors, brakes, and other apparatus on the bridge itself are weatherproof, and designed for successful operation through an angle of 90 degrees, through which angle the bridge moves vertically. The conduit carrying the current to the moving part of the bridge can be seen above near the lower left-hand side passing to the upper side of the roll-way, and, (when the bridge is open, as shown) lying along a trench to the point where the conduit is carried up into the bridge itself. As the bridge swings down, the point where the cables enter the leaf moves upward, and the slack cable rises out of the trench.

The bridge is controlled from a tower. To open the bridge the signals are first set against trains, de-rails are opened, and bridge rail lock mechanisms are released. Until these steps are taken, it is impossible to open the bridge. The controllers are then operated and the upward movement of the bridge begins. At four points in its travel, signal lamps are lighted and bells are rung. If the power is not shut off when the leaves are at the proper height, a circuit breaker is tripped automatically. When the bridge is open, the navigation lights on the river change from red to green.

The leaves are arranged in case of emergency to be manually operated by means of an endless chain over a wheel on the counter shaft. Consid-



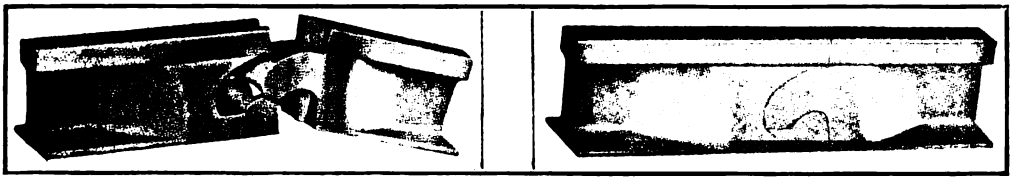
OPERATING MOTOR AND GEAR.

erable time is required for this and it has never been necessary since either of the bridges were put into service.

The motors and complete electrical equipment for this bridge were furnished and installed by the Westinghouse Electric and Manufacturing Company.

NEW FORM OF RAIL JOINT.

ONE of the most interesting of recent inventions in the railway field is that of a new rail joint which has been patented. The fundamental idea of this joint is seen from the accompanying illustration. Instead of the customary fish plates and bolts, the rails, when in position on the tracks, are locked together by a peculiarly fashioned joint. The advantages claimed for this rail are that it prevents the clicking of the rolling stock when in motion, and eliminates the battering of rail ends; a low joint is impossible, because one rail cannot spring below the other. It is claimed that the track is no more liable to spread at the joints than elsewhere, even though no bolts or other fastenings are used to hold the rails together. It is stated that it is only necessary to raise the rails eight inches to lock or unlock them. In laying the rails ,they are locked together on their sides and then raised to proper position on the ties. It is also claimed that such a track permits of better insulation in connection with signal work.



Photograph from "Railway and Locomotive Engineering."

NEW FORM OF CONTINUOUS RAIL JOINT.

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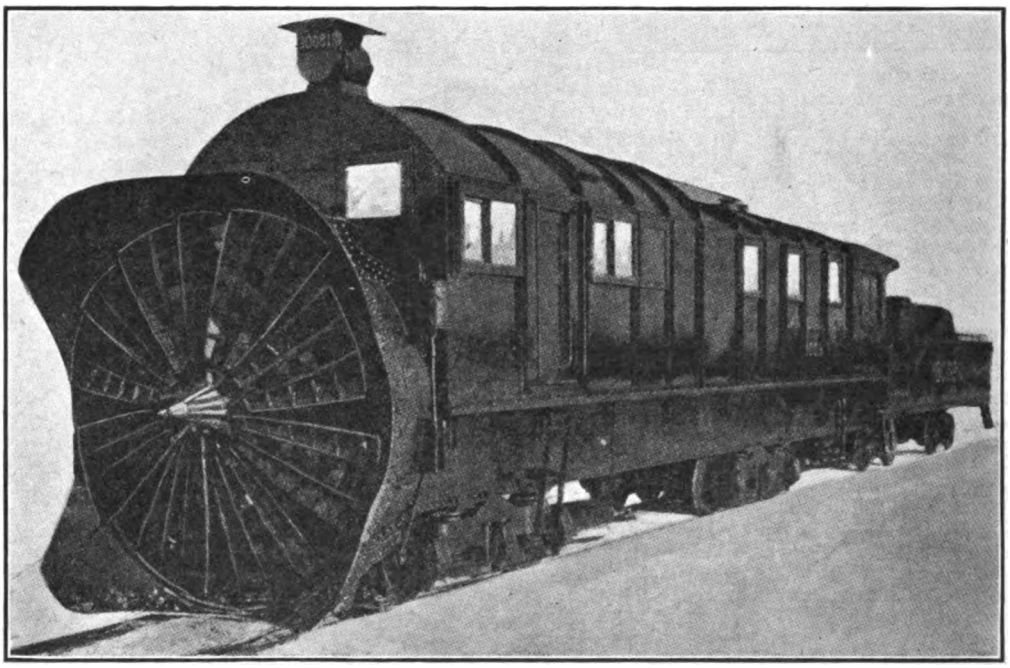
GIANT SNOW PLOW OF THE CANADIAN PACIFIC RAILROAD.

RAILWAY officials are watching with interest the results of a possible adequate test this winter of a steel rotary snow plow, recently constructed by the Canadian Pacific. The general appearance of this giant plow is shown in the accompanying illustration. Up to the present time there have not been sufficiently severe conditions to test fully the capacity and effectiveness of this plow although it has been run through a drift of hard packed snow about 250 yards long, without slowing down. In addition, the plow was pushed by one engine instead of two, which was the custom with the older plows. In the tests of last year, the plow encountered a car coupler in the drift, which was thrown out to one side before it was seen by the crew; the only damage done to the plow was a semicircular piece, about two inches in diameter, broken out of one of the blades. In another instance, the plow encountered a tree four inches in diameter in the drift, which was promptly cut to pieces and thrown out.

The plow has a long frame of 48 feet 4 inches, and weighs 260,000 pounds, distributed appproximately equally on both trucks. The tender attached to the plow has a capacity of 7,000 pounds of water and 16 tons of coal.



A STEEL ROTARY SNOW PLOW RECENTLY PUT IN SERVICE ON CANADIAN PACIFIC RAILROAD.

A TENDER-COMBUSTION TYPE OF LOCOMOTIVE.

MR. WALTER T. RAY, fuel engineer of the Clinchfield Fuel Company, read a most interesting paper before a recent meeting of the Richmond Railroad Club, which has just appeared in the proceedings of that society, on the advantages and disadvantages of a tender-combustion type of locomotive. After pointing out that most of the recent improvements in locomotive construction had been in engine mechanism rather than in the boiler, and that a limit was reached, or soon would be attained, where further development would be impossible, because of the inability of the boiler to supply the required amount of steam, he proceeded to explain the reasons why further development of the boiler was so difficult. He pointed out that if the present grate area and size of the furnace is increased, that the men will be unable to fire it, while, if mechanical stokers are used in order to feed the larger furnace, the firemen will be unable to get at the fuel bed for corrective treatment. He further called attention to the fact that had been brought out by Mr. H. B. MacFarland, of the Santa Fe road, in a recent paper on locomotive drafting and its relation to fuel consumption, that in the present day locomotive of good design about as much power was consumed in producing draft as in pulling their train when the speed was greater than from 20 to 40 miles per hour. If the back pressure on the pistons is to be avoided, a large nozzle must be used, whereupon the draft would fall and the boiler could not be made to steam properly.

Mr. Ray advocated as the only solution of the problem, a tender-combustion type of locomotive, which involves, in substance, a large "Dutch Oven" furnace on the tender, and the elimination of the present fire box in whole or in greater part. He believed that it would be possible to make the tender as long as desired—as long as a Pullman if you wish— and that with such a furnace mechanical firing could be successfully employed. The furnace would be connected with the boiler, according to Mr. Ray, by a flexible con-

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necting tunnel properly lined with firebrick and magnesia blocks to prevent excessive heat radiation. He pointed out the possibility of putting drivers under the tender, thus continuing the fundamental idea of the Mallet compound. With this type of tender, he believed it would be possible to very much increase the rate of combustion and very much reduce the draft; to decrease the amount of heat absorbed by the fire box (now about one-third of all the heat absorbed); to increase the length of the flues by the length of the present fire box, and to increase the number of flues by making each smaller.

In conclusion, Mr. Ray declared that this type of combustion would decrease the spark loss, now running from 10 per cent to 20 per cent of the heat and coal fired and which, according to him, amounted to about $1,500 annually per locomotive. He further declared that the more perfect combustion which would result would mean a saving of from $600 to $800 annually in the coal bill per locomotive. The greater steaming capacity would result in a greater draw-bar pull which would be particularly noticeable with high speed locomotives. This would eliminate or greatly reduce the necessity for superheating.

VENTILATION OF STEEL SLEEPING CARS.

ALMOST interesting article, by Dr. Thomas R. Crowder, has recently appeared in the *Railway Age-Gazette*, on the ventilation of steel sleeping cars. It will be remembered that Dr. Crowder has made a number of studies of ventilation in sleeping cars, the results of which have been published from time to time in previous years. The former tests were made, however, with the Pullman sleeping car of wooden construction. The present tests deal entirely with the modern steel sleeping cars, which have been recently added to the equipment of the largest railway systems. The tests were made in the first two months of 1912 in thirty-six steel cars; the methods employed were the same as previously followed. Samples of air were collected in various parts of the car and subsequently analyzed. These samples were taken during the night after the passengers had retired, and normal night conditions prevailed. The tests of the air collected from the car body (not from the berths) showed that for the thirty-six cars examined, there was approximately 56,000 cubic feet of air per hour supplied per car or in those cars which were kept entirely closed even to drop sashes in the doors, 53,000 cubic feet per hour. This compares with 40,600 cubic feet per hour for the older type of cars, equipped with the same ventilation device but with deck sash construction, and of 28,300 cubic feet per hour for cars having ordinary deck sash ventilation.

The samples of air taken from the lower berths showed that the average air supply with the steel car equipment was approximately 2,170 cubic feet per hour, per passenger. This compares with 2,030 cubic feet for the lower berths of the older type of cars equipped with the same ventilation device, and with 1,390 cubic feet in cars ventilated by the deck-sash method. The results of the tests, concerning the air supply in upper berths, showed approximately 2,000 cubic feet per hour per passenger as compared with 1,880 cubic feet in the upper berths of the old type of cars equipped with the same ventilation device, and 1,270 cubic feet in cars ventilated by the deck-sash method.

Altogether, the tests of the new type of steel car showed most satisfactory conditions in spite of the abolition of the window in the upper berths and the new type of sleeping car is much better ventilated, much less draughty, and altogether more desirable.

METHODS AND MEANS OF SMOKE ABATEMENT.

THE proceedings of the Engineers' Club of Philadelphia for January contains the paper recently read by Mr. A. R. McBride, of the Department of Industrial Research of the University of Pittsburgh. Mr. McBride ascribes a considerable amount of smoke arising from locomotives to an excess of air passing through the furnace. He stated that it is not unusual to find a condition where from 4.2 to 5.2 times as much air as is theoretically required is passing through the furnace. He pointed out the great loss of heat energy which is involved in heating this excessive amount of air and the consequent loss of fuel and the imperfect combustion which results from an improper mixture. While recognizing the many difficulties which confront the locomotive builders in connection with the many problems of providing at all times a proper amount of air, he nevertheless believes that considerable advancement can be made through careful investigation and perhaps through the use of dampers. He pointed out that it was to the interest of the railroads to exert the greatest activity in endeavoring to abate the smoke nuisance, both from the standpoint of economy, and because of the growing impatience of the public with smoke nuisances, no matter from what source they may arise.

ADDITIONAL LIGHT ON OPEN-HEARTH STEEL RAIL MANUFACTURE.

ONE of the most valuable contributions thus far made to the question of the proper manufacture of open-hearth steel rails, is the paper read by Dr. P. H. Dudley, consulting engineer, rails, tires, constructural steel, of the New York Central lines before the American Institute of Mining Engineers at its February meeting in New York. Dr. Dudley exhibited some photographs showing the condition of the ingots which were used by him in the investigations concerning which his paper was written. We reproduce herewith photographs of these ingots. Dr. Dudley's investigation followed the customary methods, consisting of a chemical analysis of test borings taken at very frequent intervals throughout the entire ingot and of drop and ex-

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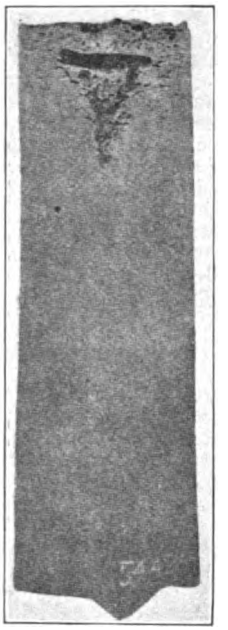
hausted-ductility tests. In connection with this investigation, Dr. Dudley outlined the tests which were now in force in the New York Central division for open hearth rails, and gave the results, in general, which had thus far been attained with these tests.

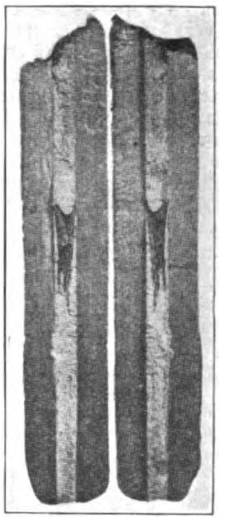
The present methods employed in testing rails differs somewhat from that followed by many railroad systems. Dr. Dudley stated that the steel manufacturers had at first objected to some of the tests, including the so-called ductility test, on the ground that they were impracticable. The results, however, which had been secured, were so satisfactory that many steel manufacturers had adopted these tests for their own information, using them on rails manufactured for lines which did not require such tests. It will be remembered that the ductility and elongation tests, as used by the New York Central Lines, have been adopted by the American Railway Engineering Association.

Dr. Dudley was of the opinion that the ductility and elongation tests, up to the present time, furnished the best and only practicable means of determining the degree of purification and the physical properties of the steel per melt, in addition he declared that "the ingot should have such relations of area of base compared to the height and weight that under good mill-practice and suitable deoxidizers, it can be made with controlled segregation, and only a trace of a shrinkage-cavity in the top; then, when bloomed under its equalized initial heat, it is rendered pipeless by the usual eight to ten per cent discard.

"Aluminum can be replaced and silicon partly, as deoxidizers, with advantage by the use of ferro-titanium to purify, solidify, and check segregation in rail-, tire-, and axle-steels, and also some of the lower grades of carbon-steels where great purity is desired."



SPLIT INGOT.

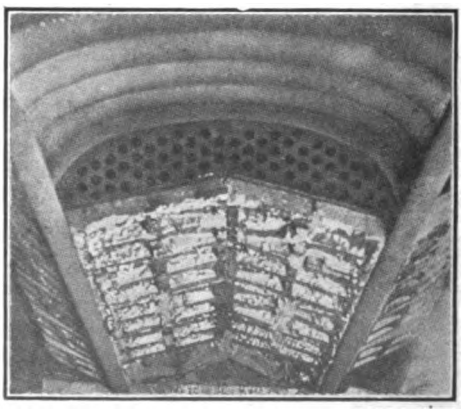


CROP FROM COMPANION INGOT.

General Appearance of Ingots which were the subject of an interesting study by Dr. Dudley, of the New York Central System.

ADDITIONAL RESULTS OF RECENT JACOBS-SHUPERT BOILER TESTS.

PROFESSOR W. F. M. GOSS, Dean of the College of Engineering of the University of Illinois, under whose supervision recent comparative tests of the Jacobs-Shupert boiler and of an ordinary radial-stay boiler were made, has issued his final and complete report giving the detailed results of these experiments. The preliminary report of Professor Goss was summarized in the January issue of the RAILWAY WORLD, and in connection therewith some of the illustrations, showing the results of the tests, were reproduced. We reproduce herewith some of the more interesting of the later illustrations, contained in the final report, showing interesting features in connection with the test. One of these cuts shows the fire box of the Jacobs-Shupert boiler after the low water test, indicating clearly that the brick arch remains in place and in perfect condition, and showing also the location of the only leak which was observed in the fire box. As contrasted with this an accompanying illustration shows the havoc which the explosion and the antecedent leaks played with the radial-stay boiler. One illustration shows the fire box and what remained of the crown sheet after the test, and also how the arch tubes which were disturbed and forced downward; the other shows the remainder of the crown sheet after a large portion of it had been blown away, the stay bolts remaining, and having torn through the sheet. The series of tables contained in the report showing the fuel tests, the performances of each type as regards evaporation, the test concerning smoke box gases and the statistics derived therefrom will prove interesting to master mechanics. It will be remembered that the tests showed remarkable advantages for the Jacobs-Shupert boiler which came through the severe trial almost un-



JACOB-SHUPERT FIREBOX AFTER LOW WATER TEST. BRICK ARCH IN PLACE AND IN PERFECT CONDITION. LIGHT SPOT ON FLUE-SHEET AT CENTER OF CROWN-SHEET, VISIBLE RECORD OF ONLY LEAK OBSERVED.

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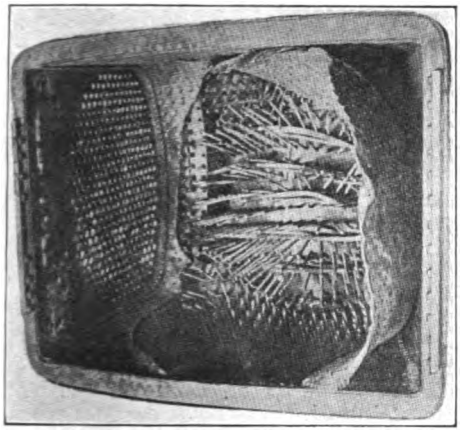
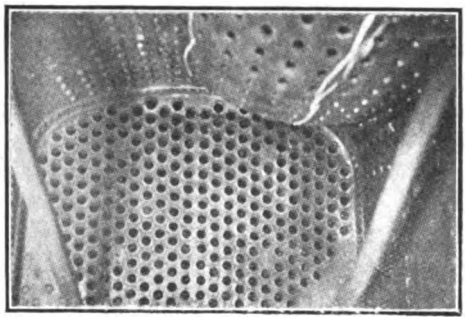


CROWN SHEET FAILURE. MOST OF CROWN AND PORTION OF ONE SIDE-SHEET BLOWN AWAY. STAYS RETAINED THEIR PLACES IN OUTSIDE SHEET.

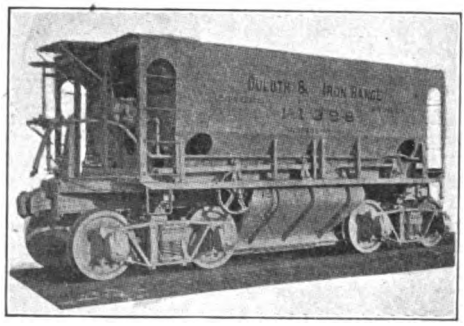


RADIAL STAY BOILER AFTER LOW WATER TEST, SHOWING POCKET IN CROWN SHEET. ARCH TUBES WERE DISTURBED AND FORCED DOWNWARD.

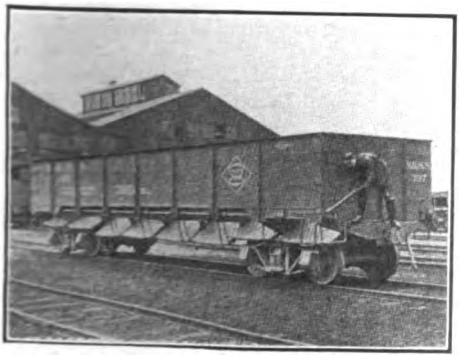
scathed, while the radial-stay boiler was practically destroyed. Professor Goss's general conclusion is that the Jacobs-Shupert boiler is correctly designed from a theoretical standpoint; that the design permits of a high grade of workmanship; that its construction reduces the cost of boiler maintenance; that it has equal steaming capacity with the radial-stay boiler; that it possesses advantages as regards circulation of water over the ordinary type of boilers; "that the superior strength of the Jacobs-Shupert boiler under the low-water conditions permits it to endure overheating without failure for long periods of time, where the normal radial-stay boiler quickly fails; and that where the overheating is so severe that it can not be resisted, the result will be a blow-out and not a disastrous explosion."

THE DEVELOPMENT OF STEEL FREIGHT CARS.

MR. CHARLES LINDSTROM, chief engineer of the Pressed Steel Car Company, delivered a most interesting address before the January session of the New England Railroad Club on "The Development of Steel Freight Cars." After summarizing the obstacles which had to be overcome in the evolution of the steel car the speaker pointed out that the remarkable popularity of this type of car was due to its greater carrying capacity, the small running resistance per gross ton increasing the locomotive tonnage and decreasing ton mile costs, the increased storage capacity of such cars in yards and sidings, their reduced cost of maintenance, their greater scrap value and greater load carrying capacity, in proportion to the dead weight or tare. Mr. Lindstrom explained the principles of design which underlie successful steel car construction, and pointed out some of the mistakes in design which had been made by railway companies and had led to unsatisfactory cars. His explanation was illustrated by sketches and designs bringing out the points involved. This technical discussion will be found interesting to car designers and those having to deal with kindred problems.



LATEST TYPE OF STEEL DUMP CAR, USED FOR HAULING MINNESOTA IRON ORE.



STEEL DUMP CAR, OPERATED BY END LEVER.

Perhaps the most striking feature of Mr. Lindstrom's address was the latter portion in which he emphasized the great possibilities of the steel car for special uses. He pointed out, for example, that in the construction of dump cars it was possible by the use of steel to enlarge door openings, which facilitates the quick unloading of cars, thus shortening the delays of cars at unloading points and enabling the handling of a larger tonnage with a smaller number of cars. He emphasized the fact that this was an important ele-

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ment in reducing the comparative car shortage which would otherwise prevail. The amount of shoveling which is required in connection with unloading of cars is very greatly reduced. This is of advantage not only to the railroad companies in handling freight but also to shippers. This portion of the address was made very real by a number of excellent illustrations two of which are herewith reproduced. Some of the latest types of specialized steel equipment was shown. In conclusion Mr. Lindstrom pleaded for a standardization of types and parts which would bring about lower costs of construction and maintenance and codify the valuable features which have been evolved by various car companies and railway companies in previous years.

Electrical

NO important electrification projects of steam railroads have been announced during the past month. It is currently reported that a number of companies are seriously considering electrifying various portions of their system. The unsettled state of the security market, making it difficult if not impossible for the companies to secure funds necessary to carry on such work, and a feeling of uncertainty in some quarters as to the probable attitude of the new Administration, of Congress and of the State legislatures, many of which are now in session, is believed to be responsible for the present situation.

Additional Details Concerning St. Paul's Electrification Project.

IN connection with the plans for the electrification of the Chicago, Milwaukee and Puget Sound Railway from Harloton, Mont., to Avery, Idaho, the main details of which were described in the RAILWAY WORLD for February, the point which is probably of greatest interest to railway officials is the arrangement which is to be made with the various power companies who are to suppply the electrical energy for the line. The contract with the Great Falls Power Company provides that the railway company shall complete the electrification of its line before January 1st, 1918, and shall purchase from the power company energy at the rate of 10,000 kilowatts for the full period of the ninety-nine-year agreement. Two years' notice is to be given the power company of the date on which the delivery of power must commence. The company reserves the option to purchase additional power in various quantities, at specified dates, up to a maximum of 25,000 kilowatts; any additional amount taken under this option privilege is to run for the balance of the contract. The power company is not liable for interruption to the supply, nor the railway company for interruption to its consumption, owing to causes beyond their control, such as strikes, fires or floods. The railway company is made a preferential customer entitled to first service. The contract is to be broken automatically provided the Federal Government at any time enjoins the power company in the exercise of its rights in respect to either its hydro-electric plant or its transmission lines across the public domain.

Energy is to be delivered at five specified points, or less, at 50,000 volts or 100,000 volts, three-phase, sixty cycles, alternating current. The railway company is to transform the energy and distribute it along its line. Twelve months' notice will be given the power company of the location of the delivery points. The rate for energy will be $0.00536 per kilowatt-hour, subject to a minimum bill after the first year of service equivalent to 60 per cent of all the energy contracted for. The power company is required to pay the Federal Government a tax of $.005 per 1,000 kilowatt-hour, for all energy delivered over transmission lines crossing the public domain.

It is unofficially reported that the St. Paul will electrify its main line from Avery, Idaho, through to the Pacific Coast as soon as the 450-mile electric stretch in the Rockies has been completed and is found to be operating smoothly.

President Worthington on Electrification.

PRESIDENT WORTHINGTON, of the Chicago and Alton, writing in response to an inquiry from Thompson, Towle and Company, on the outlook for the substitution of electric for steam power generally on the railroads, states that in his opinion the technical progress of electrification has not progressed sufficiently to meet the various requirements of the railway requirements under the present conditions. He holds that the pressing necessity for the expenditure of vast sums to supply the needs of commerce simply in the way of heavier track, better roadbed and greater yard accommodations, makes the great first cost of electrification a serious obstacle. Furthermore, it is extremely difficult as well as expensive to adapt the present status of electric traction to large terminal and freight yards. Finally, the experience of the few roads which have electrified on a limited scale, he says, has not been such as to establish the comparative economy of electrification.

In three classes of service, President Worthington says, electrification will take place within the next decade: suburban service, where smoke must be eliminated and frequent-stop trains operated at high speed; long tunnels, where smoke gases are dangerous, and heavy mountain grades where water power is available and the uniform pull on the draw-bar produced by electric motors, with great reserve power, is a distinct advantage.

Probable Features of St. Paul's New Electric Locomotives.

IT is semi-offically announced that the initial order for electric locomotives by the St. Paul System will comprise 50 locomotives specially designed to meet the service conditions on that system. Each locomotive must be able to pull a maximum freight tonnage of 2,100 tons up a one per cent grade. On heavy grades helpers will be added. The locomotives will be designed to attain a speed of 30 miles per hour up grade and 25 miles per hour down grade for passenger motors, and 15 miles per hour for freight locomotives.

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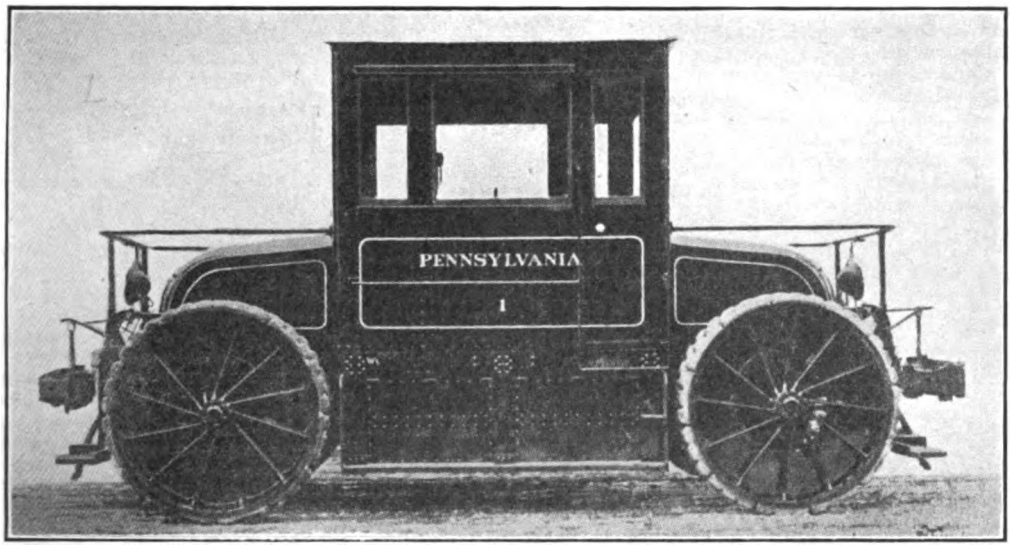

PENNSYLVANIA RAILROAD'S NEW ELECTRIC TRACTOR.

Electric Tractor for Use in City Streets.

THE Pennsylvania Railroad Company has recently constructed at its Juniata shops, an experimental electric tractor for use in city streets. The tractor is designed to replace string teams of horses and mules used for hauling cars over railroad tracks in city streets for delivery to shippers. Besides the economies which it is expected will be effected by the use of this machine it is believed that the handling of cars will be greatly expedited. As a preliminary to the construction of the tractor the railroad company tried out a number of commercial trucks, none of which, however, proved satisfactory. The general appearance of the tractor is shown in the accompanying illustration. It is unique in that it drives, steers and brakes on all four wheels; this was made necessary because of the short radius curves generally prevailing on the local sidings. The motive power of the tractor is electricity, there being two General Electric motors of approximately twenty horsepower each. The power is supplied by storage batteries which are hung in the center directly under the cab. The battery consists of 80 cells of Edison A—12-H and weighs 43,050 pounds. The tractor has a total length over couplers of 23 feet, a wheel base of 12½ feet and a weight of 28,850 pounds. The drawbar pull under normal conditions is about 800 pounds, while the maximum pull is 21,500 pounds. The normal speed with normal loads is about six miles per hour.

Legislative Proposal to Compel Use of Electric Headlights.

IT is currently reported in the newspapers of Chicago that a bill is to be introduced in the Illinois Legislature, within the next few weeks, providing for the use of electric headlights on all locomotives operated within the State. It is expected that much opposition among railway officials will develop to such a law. Many believe that the Wisconsin statute which requires railroad companies to equip their locomotives with headlights that will enable an engineer to see an object 800 feet away, but leaving the type of headlight to the discretion of the company, is a much more desirable statute.

Locomotive engineers have complained that electric headlights, because of their great brilliancy, often obscure signal lights, and thus are a contributing cause of accident. This matter was treated exhaustively in a paper by Mr. C. R. Larson, assistant chief engineer of the Railroad Commission of Wisconsin, recently read before the Western Railway Club.

Right of Philadelphia to Eliminate Smoke Nuisance.

CITY SOLICITOR RYAN, in a communication to Director Cooke, of the Department of Public Works, holds that the city of Philadelphia has the right under existing laws and ordinances to restrain the offensive emission of smoke within the city limits by injunction or such other proceedings as may be found advisable. This, he holds, applies to locomotives in operation or standing in roundhouses or yards. The City Solicitor is also of the opinion that it is within the power of the State of Pennsylvania by Act of the Legislature to compel the electrification of railroads operating within the limits of populous cities. "The city of Philadelphia would not have the right to require the electrification of such railroads, though possibly other ordinances upon the subject of smoke, which would be within its power might indirectly have that effect."

It is unlikely, however, that this question will ever come before the courts for the Pennsylvania Railroad Company has recently announced that it intends to electrify its lines within the city as soon as this step is feasible.

Progress of the Electric Locomotive.

THE leading editorial in the Electric Railway Section of the *Commercial and Financial Chronicle*, issued under date of January 25th, is a most interesting discussion of the pro-

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gress of the electric locomotive. After commenting upon the rapid progress of heavy electrification in this country and abroad the editorial points out the many recent technical improvements which have been made in the electric locomotive and the rapid approach to the standard types and conditions which is apparent from a review of the specifications covering recent orders. The points of superiority of the electric locomotive over the steam engine, as explained in a recent article by Mr. A. A. Armstrong, of the General Electric Company, which was summarized in the February issue of the RAILWAY WORLD, are finally recounted.

Additional Electrification on the New Haven.

THE New York, New Haven and Hartford Railroad has announced that the line between Stamford, Conn., and New Haven, forty miles in length, will be ready for operation by electric power on July 1st, next. When this stretch of track has been put into service, trains can be hauled by electric locomotive from New York to New Haven, a distance of 74 miles.

Progress of Denver and Rio Grande's Electrification.

IT is expected that the work of electrifying the western end of the Denver and Rio Grande's line between Helper and Salt Lake City in Utah, a distance of 15 miles, will be practically completed by July 1st, of this year. The electrification of the line from Minturn to Salida across the Tennessee Pass in Colorado, a distance of 87 miles, will be completed in 1913. The Utah Light and Power Company will furnish the power for the first line while it is expected that the Central Colorado Power Company will supply the power for the Colorado line, unless the railroad company decides to install a plant of its own near Tennessee Pass.

TERMINAL IMPROVEMENTS.

Philadelphia Passenger Terminal Improvements.

THE President of the Pennsylvania Railroad Company has made the following statement regarding Philadelphia Passenger Terminal Improvements:

The directors of the Pennsylvania Railroad Company have not authorized terminal improvements at Broad Street Station and will not until final plans and recommendations are ready for their consideration. When definite conclusions have been reached, the management will take pleasure in fully informing the stockholders and the public.

The question, however, involves consideration of: first, the layout and improvement of Broad Street Station; second, methods and plans for accommodating the through and local passenger, baggage, mail and express traffic, for probably the next twenty years, of six separate railroad divisions using that terminal, namely, the Main Line, New York Division, Philadelphia, Baltimore and Washington Railroad, Philadelphia and Baltimore Central Railroad, Schuylkill Division, the Chestnut Hill Branch, and the Atlantic City trains; third, whether it is advantageous to change from steam to electricity for local traffic on any of these divisions; fourth, whether these improvements will be affected by the proposed rapid transit development of the City of Philadelphia; fifth, a large space to accommodate the employees, as the parkway as laid down on the present city plans, unless revised, will remove the northeast corner of Broad Street Station and the annex office building on Filbert Street, and these offices must be replaced.

The public and the press will, therefore, appreciate that there are many and complicated problems to be solved and are respectfully requested to discourage the circulation of unauthorized rumors and impossible plans for improvements.

The Pennsylvania Railroad Company established and has maintained in the center of Philadelphia for thirty years a large and convenient station, whereas for New York City, with which comparison is frequently made, the Company's terminals were in Jersey City, requiring transfer by ferry across the Hudson River, until the system was extended into New York in 1910. Around Broad Street Station as a center, the business, hotel and recreation activities of Philadelphia have grown and the Company's expenditure must be to enlarge and improve its transportation facilities and continue to maintain not one terminal station, but three important stations in Philadelphia, namely, Broad Street, West Philadelphia and North Philadelphia.

The Passenger Terminal question is receiving active and continuous consideration, the acquisition of the extensive property required is being consummated, and a large amount of important work, involving an expenditure of several millions, is in progress in various parts of the City of Philadelphia, notably that between West and North Philadelphia, including the new double-track bridge over the Schuylkill River and the additional tracks, and enlargement of North Philadelphia Station, a new bridge over North Broad Street, a new connection for the Chestnut Hill Branch, and other facilities to accommodate the traffic.

Therefore, the city may rest assured that its needs will not be overlooked, and the Company will do its full duty in providing an adequate transportation service.

New Passenger Stations for Northern Pacific.

ILLUSTRATIONS are shown herewith of the Northern Pacific Railway Company's new passenger station at Centralia, Washington, recently completed. It is a typical example of the better class of passenger stations being erected by this company, at various points along its lines, both as to architectural features and materials used.

The station at Centralia comprises three units, viz: one main building, partly two-story, containing on the first floor, waiting rooms, toilets, ticket office and baggage room; an express building and a lunch building, the latter two

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NORTHERN PACIFIC DEPOT, CENTRALIA, WASHINGTON.

being located on each end of the main building and connected to same with a covered platform, 32 feet long.

The general waiting room is 40 ft. x 60 ft., ladies' retiring room 18 ft. x 24 ft., smoking room 18 ft. x 19 ft. and baggage room 40 ft. x 50 ft. The express building and lunch building cover an area of 32 ft. x 60 ft. each.

The exterior walls of the buildings are faced with a dark red pressed brick and have gray sand stone trimmings. The roof is covered with red Spanish tile.

The waiting rooms, toilets, ticket office and

INTERIOR, NORTHERN PACIFIC DEPOT, CENTRALIA, WASHINGTON.

lunch room have terazzo floors and base and 6 feet high cream colored enamel tile wainscotting. The walls and ceilings are plastered in Keene's cement.

The center part of the ceiling over general waiting room forms a vaulted cupola, supported on plastered columns. The beam work and interior cornices are of ornamental plaster. The buildings are equipped with modern plumbing, electric lighting and steam heating plant, located in the basement of the main building.

The platforms are of paving brick laid in herring bone style with concrete curb.

The plans and specifications were prepared in the chief engineer's office, St. Paul, and the buildings erected by contract under the supervision of the engineering department.

Similar stations have recently been opened at Chehalls, Castle Rock, Kelso and Winlock, between Tacoma and Portland. Permanent stations are being erected at similar towns, replacing wooden depots used for over a quarter century. The Great Northern and the Oregon Washington use the same stations. Their erection marks the completion of double tracking the Northern Pacific between Tacoma and Portland. The other railroads pay a yearly rental of $25,000 each from South Tacoma to Portland under a 999-year lease. As the right of way was granted by Congress, it can not be alienated, necessitating leases when the other roads obtained an interest in the line.

New Railway Building for St. Louis.

WITHIN the past few years many new modern office buildings have been erected at various important cities for the purpose of housing the employees of the important railways which have termini at such cities. These buildings are often built by

RAILWAY EXCHANGE BUILDING, ST. LOUIS.

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the companies themselves, while in other instances are constructed by outside interests with the understanding that they are to be employed for this purpose. The accompanying illustration shows the Railway Exchange Building at St. Louis, which, when completed, will be twenty-one stories in height and will cover one entire city block. It is stated that it will be the largest office building in the United States. Something like two thousand employees in the general offices of the Missouri Pacific-Iron Mountain Systems will be housed in this new building. Its exterior is of glazed cream terra cotta and with its noble simplicity of design and striking proportions, it will become one of St. Louis' conspicuous land marks.

New Electric Passenger Terminal for St. Louis.—The St. Louis Terminal Board has approved plans for the new passenger terminal of the electric lines at Eads Bridge entrance facing on Bridge Square and Washington Avenue, a three-story structure containing waiting and rest rooms, ticket office, cafe, lavatories, barber shop and offices on the upper floor. The president was authorized to advertise for bids and it is expected that work will commence in the early spring. The station will be located on the south side of the upper roadway, replacing the present waiting rooms, and the cars will pass in and out of a covered way.

Proprietory interests as follows were represented at the meeting: Missouri Pacific, B. F. Bush; Missouri, Kansas and Texas, C. E. Schaff; Wabash, Henry Miller; Cotton Belt, F. H. Britton; Rock Island, A. C. Sweet; Southern, T. C. Powell; Big Four, J. I. Van Winkle; Baltimore and Ohio Southwestern, W. C. Loree; Illinois Central, W. L. Park; Louisville and Nashville, G. E. Evans; Vandalia, A. M. Schoyer.

New Passenger Station for Cumberland Valley.—The Cumberland Valley Railroad has invited bids for the erection of a $100,000 passenger station at Chambersburg, Pa.

Grand Trunk's New Shops at Transcona.—The report has just been received at Grand Trunk Pacific headquarters in Montreal of the successful opening of the company's big shops at Transcona, Man., which both for size and completeness of equipment rival anything of the kind upon this continent. The shops include the locomotive shop, grey iron foundry, power house and a complete outfit.

The Canadian Pacific announces that its clearing yard at North Transcona, six miles east of Winnipeg, will be one of the largest yards of the kind on the continent, having a capacity of 12,000 cars. The yards are designed to relieve the Winnipeg yards.

New Kansas City Passenger Station Nearing Completion.—The new Kansas City union passenger station now nearing completion, according to comparisons given out, is six times larger than the old one, nearly four times larger than the Northwestern station in Chicago, and 83 per cent larger than the union station in St. Louis. The main building will have an area of 140,031 square feet which is exceeded only by the New York Central and Pennsylvania stations in New York. The estimated cost of the station building is $6,000,000.

New Jersey Central Station at Communipaw, New Jersey.—The New Jersey Central Terminal shed at Communipaw will have twenty tracks. The station will be used as the New York Terminal by the Jersey Central, B. & O., Lehigh Valley and the Reading will be the largest on the west side of the Hudson River. It is expected to be in use at the close of this year.

New Station for Bloomington, Illinois.—Ground has been broken for a new union station in Bloomington to cost $100,000. The structure will be erected by the Chicago and Alton, but will be occupied also by the Big Four and the Lake Erie and Western. The city donated the site. The second and third stories will be used for general offices for the railroads.

Soo Line to Change Terminal at Chicago.—A contract has been signed by the Soo Line and the Baltimore and Ohio Railroad, whereby the Soo road will obtain entrance to Chicago over the Baltimore and Ohio Chicago Terminal tracks at the Grand Central Station, at North Fifth Avenue and West Harrison Street. Soo trains now have terminal facilities at the Park Row Station of the Illinois Central Railroad. The change will not go into effect until about July, 1914, when it is expected the new freight terminal of the Soo Line between East Twelfth and East Sixteenth Streets and South Canal and South Clinton Streets will have been completed.

Clearing Yard for the Alton.—The Chicago and Alton Railroad expects to make extensive improvements this spring at the Glenn yards, located a short distance from the interchange at Clearing, Ill. Plans have been made to expend several hundred thousand dollars for a thirty-stall roundhouse, shop buildings, water tanks and forty miles of switching tracks. The Chicago and Alton has acquired title to 100 acres of land at Glenn and intends to use the property for an assembling and distributing yard.

The site at Glenn is outside of the so-called Chicago smoke limit. At the present time the company has a switching ward at Brighton Park, but the elevation of railroad tracks in that locality and inability to obtain adjoining property in order to increase terminal facilities has resulted in a decision to establish a clearing yard at Glenn. The latter point is ten miles from the Chicago Union Station.

New Station for Peoria.—Work is to begin in March on a new $350,000 passenger station to be erected in the center of the city of Peoria, Illinois, by the Illinois Traction System.

Adjoining the station is to be a train concourse large enough to accommodate twenty cars at a single time. The new structure is to be seven stories in height, the first four to be devoted to the waiting rooms and offices of the interurban, and the others to office suites. The plans call for 10,000 incandescent lights, to be arranged about the exterior walls of the building.

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The Interstate Commerce Commission

Commission Calls for Traffic Statistics.

THE Commission having conferred with prominent railway officers and secured the co-operation of a committee of the Association of American Railway Accounting Officers, is considering the question of formulating a general scheme of traffic statistics under which reports would be made by the carriers giving information such as might be useful to the Commission in considering questions before it, especially questions regarding increases or decreases in freight rates. As a preliminary to this, a circular has been issued signed William J. Meyers, statistician of the Commission, calling for information from the railways as to the practicability of making the proposed report, and asking also for opinions as to the best method of procedure. It is desired to have records of the movement of important commodities from principal traffic centers to other traffic centers, showing both tonnage and revenue; the tonnage is shown also in carloads. In the circular now sent out Mr. Meyers presents a suggested standard list of commodities; a standard list of districts of production and of consumption and a sample statement form. Under one of the plans proposed all of these traffic statistics would be made up at the station of destination so as to insure accuracy in spite of diversions in transit and other irregularities, such as stopping in transit for manufacture or partial manufacturer. The tentative list of commodities contains ninety-eight items. The tentative list of points of origin and destination covers the whole of the United States, and also has a dozen items to represent foreign countries; for example, the districts in Massachusetts are (1) Boston, Cambridge and Lynn; (2) Brockton; (3) Fall River, New Bedford; (4) Holyoke, Springfield; (5) Lawrence, Lowell; (6) Somerville; (7) Worcester; (9) remainder of Massachusetts. Railway officers receiving this circular are asked to make criticisms or offer alternative plans and to give an estimate of the expense of producing records under the plan proposed.

New Accounting Method.

THE Commission has completed the tentative draft of new schedules affecting certain features of railway accounting not heretofore covered.

Inasmuch as the Public Utilities Commissions in most of the States adopt such regulations, when laid down by the Interstate Commerce Commission, the new schedules will, it is expected, be in force throughout the greater part of the country by July 1st, next.

Pipe Line Order Modified.

ANOTHER modification of the pipe line decision has been announced by the Commission whereby the companies are given until March 15th to file tariffs of their rates for transporting oil similar to any common carrier. The lines had been ordered to file these tariffs by February 1st. but owing to the fact that the Commerce Court has under consideration an appeal of the pipe lines from the decision of the Commission, the date was postponed until after the court has acted.

Hearing Under the Long and Short Haul Clause.

THE Commission has set March 17th, 18th and 19th, for the dates on which arguments will be presented by the railroads as to why the present scheme of rates should be maintained between Eastern and lake points to points in the southeast and on the gulf. The railroads have petitioned for authority to continue lower rates from New York City, New Orleans and the Ohio River crossings to South Atlantic and Gulf ports, to points on certain navigable rivers and to Birmingham, Ala., and Atlanta, Rome and Cordele, Ga., than are concurrently effective on lake traffic to intermediate stations.

Tap Line Rates.

RAILROADS in the southwest and south have been ordered by the Commission to re-establish through and joint rates with a number of their tap-line connections. These rates had been ordered cancelled.

The establishment of through rates is to be maintained for a period of two years, and the joint rates for a period of sixty days.

Free Delivery at Washington Discontinued.

THE Pennsylvania Railroad has filed with the Commission notice of its intention to discontinue, March 1st, its free delivery of freight in the City of Washington. This system of free delivery in that city was inaugurated by the railroads themselves in 1883 to free themselves of the then serious freight conges-

JOHN H. MARBLE,
Secretary, Interstate Commerce Commission.

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tion. The free delivery at that time took in a very limited area, but like all abuses it grew until finally, it took in practically the entire city.

Ruling on Charity Freight.

THE Commission has issued a ruling in reference to free transportation of shipments for charitable purposes. The ruling of the Commission which covers one specific case is as follows:

"The Upper Iowa University is a denominational college maintained largely by voluntary contributions from persons interested in educational and charitable work, it exacts tuition from all students able to pay, but for worthy and needy students free tuition is provided through scholarships donated both by persons connected and those who are not connected with the college. Certain coal dealers in Chicago contribute free coal to the college. The question is whether under section 22 of the act to regulate commerce railroad companies may carry this coal without exacting the regular tariff rate. Held, that section 22 of the act does not permit of transportation of this coal at other than the tariff rate."

Wreck Responsibility Placed.

THE Commission finds Enginman Yorke and Brakeman Gross responsible for the wreck on the Cincinnati, Hamilton & Dayton Railroad in the suburbs of Indianapolis, November 13th last, which caused the death of fifteen persons and injury to eleven others.

Commission holds Flagman Cunningham of an excursion train on the Yazoo & Mississippi Valley Railroad responsible for a wreck on November 12th last, near Montz, La., when fifteen persons were killed and many others injured.

State Pass Investigations.

THE latter part of January it became known that the Commission had under investigation the improper and illegal use of railroad passes. On January 22nd, it was stated, to use the language of the Commission, that "carriers have very generally obeyed the letter of the law," but it is indicated by information that has reached the commission that the "issuance of passes for State travel has operated to defeat the purpose of the act to regulate commerce; that passes for State travel have been issued to certain shippers and denied to others; and that the moving consideration of such passes has been the routing of interstate shipments of property."

Since that time, Commissioner Harlan has conducted an investigation of the distribution of railroad passes in Colorado. He examined 100 witnesses in three days and accumulated an enormous fund of information.

The evidence disclosed the fact, he says, that the roads were engaged in the indiscriminate issuance of passes to get traffic and influence legislation. It was found that no less than 1,487 persons rode "dead-head" in a single day on the Denver & Rio Grande and of 36 passengers in a single coach on the Colorado & Southern, 21 had free transportation.

Of the judges of the Supreme Court to whom annuals were sent, only two returned them. One road gave 1,865 annuals, 1,942 trip and 275 term passes in six months. Of State officials 497 rode regularly on annuals and the same was true of 187 county officers. It was conceded by the railroad officials who testified that in most sections of the State rates can be given and money saved by the carriers if the custom of granting passes is abolished.

Under existing conditions, however, the roads claim that they are powerless and that their business would be greatly reduced unless they resorted to such methods, which have been in vogue for many years.

Commissioner Harlan says that investigations of the same character will be conducted in several other States. Under the law the railroads must keep a record of all free transportation issued with the reasons therefor, and the Commission is authorized to examine the books. The Commission's interest in the matter rests in the fact that the indiscriminate issuance of State passes often has a decided effect upon the movement of interstate shipments or persons.

Transit Privileges Cancelled.

THE Commission after a re-examination of the entire subject of transit privileges on all commodities, but chiefly on lumber and grain, has issued an order cancelling all previous orders and requirements of the Commission designed to prevent evasion and violation of the interstate commerce law in the granting of such privileges. The order applies to all commodities enjoying, or supposed to enjoy, milling-in-transit or manufacturing-in-transit privileges.

This action was based on the promises to the Commission of the big railroads and bill milling and other interests concerned to publish and enforce transit privileges in their tariffs that will permit the operation of the privileges and at the same time conform to the law.

The Commission has had milling-in-transit abuses, and the alleged granting of rebates under this privilege under consideration for more than a year.

Express Companies Demonstrate Their Losses Under Reduced Rates.

TO demonstrate to the Commission the effect of the reduced rates it proposes, the express companies have reported that had the proposed rates been in effect on October 23d, a test day selected, the reductions in their revenue would have ranged from 4.96 to 30.6 per cent.

The day's receipts for the Adams would have been reduced $18.291, or 23.6 per cent; the American, $19,824, or 24.2 per cent; the Southern, $9,708, or 30.6 per cent; the United States, $10,419, or 22.3 per cent, and the Wells-Fargo, $16,832, or 25.2 per cent.

These five companies assert that the application of the reductions would have resulted in a total loss of $24,996,047.25 in their business for the year ended June 30, 1912, "equivalent to an operating deficit of 5.42 cents for every dollar of gross transportation revenue collected."

The Great Northern Express Company shows

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a reduction of 16.01 per cent, which would have produced a deficit, based on the business of the last fiscal year, of $3,320. The Northern Express Company figures a reduction of 17.3 per cent, which would leave its earning power "less than 1.4 per cent on the capital stock."

The Western Express Company's estimated loss of revenue would be 4.96 per cent. This is explained by the facts that it operates under rates fixed by some State Legislatures at a comparatively low figure. The Globe Express Company, another western corporation, also is operating under rates fixed by many States.

No intimation is given by the Commission as to when it will enter an order in the express investigation, but it is expected some time in the spring and probably will be made effective two or three months later.

Telephone Inquiry Ordered.

THE Commission has issued a formal notice of the beginning of an investigation into the business of the telephone and telegraph companies. That this investigation would be made became public some time ago when Attorney-General Wickersham announced that he had decided not to take any action against the American Telephone & Telegraph Company under the Sherman Anti-Trust law, but would turn all the data in his possession over to the Commission.

The notice issued by the Commission to-day is as follows:

"Information having been lodged with this Commission to the effect that the American Telephone & Telegraph Company, by the operations of itself and allied companies, is attempting to monopolize the telephone and telegraph business of the United States and is fast driving out of existence independent companies, and further, that this company and other telephone and telegraph companies are guilty of unlawful discriminations and are imposing unreasonable rates, rules, regulations and practices in the conduct of their business.

"It is ordered that a proceeding of inquiry and investigation be, and it is hereby, instituted into and concerning the history, the financial operations, the rates, rules, regulations and practices of telephone and telegraph companies subject to the act to regulate commerce with a view to the making of a comprehensive report and to the issuance of such order or orders, as may be necessary to correct such discriminations and make applicable reasonable rates and practices."

Improvements from Earnings.

THE Commission has handed down a decision in which reference is made to a new system of making rates which may have an important bearing on cases pending and which appears to forecast a future policy of the Commission in fixing rates. It is intimated in the decision referred to that the railroads have not made improvements with surplus and with earnings that would tend to decrease the cost of operation and that with the constant increase in wages and no effort by the carriers to improve the efficiency over the line which the traffic is moved, the inevitable result is an increase in the cost of movement.

"If the carrier," says the Commission, "for reasons of its own, does not make the character of improvements that will reduce the cost of operation, it hardly lies with it then to claim that it may raise the rates because the cost approaches or overtakes the revenue."

The decision of the Commission was made in a proceeding begun by the Commission against the Louisville & Nashville Railroad on complaint of shippers. The shippers charged that proposed increases in the rates on coal and coke, from mines and ovens on the Cumberland Valley Division of the Louisville & Nashville road in Virginia were unreasonable and unjust.

The railroads sought to increase the rates on coal to the Ohio River and to points south 25 cents per ton from the Appalachian district and 15 cents per ton from the St. Charles district. The Commission permanently suspended the proposed increase and ordered the present rates to continue, holding that the railroads, particularly the Louisville & Nashville, had not sustained the burden placed on them by law of showing the reasonableness of the proposed advances.

In substance the Commission in its decision holds that at present carriers have the wrong method of fixing rates by allocating cost of service and that they include items which should not be taken into consideration in fixing specific rates. In fixing specific rates the Commission holds, only the cost of fuel, wages of crews and repairs to locomotives and cars should be taken into consideration, this being about 50 per cent and should eliminate the remaining 50 per cent, made up chiefly of salaries of general officers and way and structure account.

Freight Bill Inquiry.

AN investigation of railroad freight bills is to be undertaken by the Commission. Complaints have been filed to the effect that railroads have failed to establish just and reasonable regulations affecting receipts or bills for freight charges, and that the present practices of the roads in this regard are discriminatory and otherwise unlawful. All roads subject to the Interstate Commerce Act are made parties to the investigation, including rail and water carriers, but excepting express companies. No date was set for beginning the investigation.

The Commission announced that it wishes to determine by the inquiry whether the freight bills shall include the following:

The point of origin.

The date of shipment.

The correct weight of shipment.

The route, including the name and initials of each carrier participating in the haul, and the junction points through which the shipments moved.

The initials and number of the car.

Adequate description of the property transported.

The rate or rates applied to the transportation.

A statement of the nature, amount and point of accrual of each item of charge for stop-in-transit, reconsignment, switching, car service,

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storage or any other charge incident to the transportation.

Where such bills are presented to the consignee they should also show the name of consignor and date of arrival of shipment at destination.

Reparation Denied Wool Shippers.

THE Commission has issued a ruling in which it denies reparation asked for by wool shippers on the Pacific Coast and at Rocky Mountain points.

On complaint of the National Wool Growers' Association, National Mohair Growers' Association, and the Railroad Commission of Oregon, the Commission held, on March 21, 1912, that the freight rates were unreasonable and directed that they be reduced. Later, in the spring and early summer of 1912, the railroads put into effect the lower rates suggested by the Commission. In its decision the Commission reserved the question of granting reparation, requested by shippers on all shipments during the period from two years prior to the filing of the complaint until the date the reduced rates became effective. The Commission held that reparation would be granted only for shipments under the old rates after the date of the Commission's findings.

The following principles were laid down for awarding reparation:

"It is by no means true that because a rate is found unreasonable upon a given date it has been unreasonable during the two years preceding, and it cannot be assumed that whenever the Commission holds a given rate to be unreasonable it will, as a matter of course, award reparation on the basis of the rate found to be reasonable as to all payments within the two year limitation.

"The Commission is not satisfied that the complaint has shown that the rates as stated in the tariffs of the carriers were unreasonable up to the date of the original decision herein, March 21, 1912, but from that date the rates and regulations suggested by the Commission are held to be unreasonable and the rates and regulations of the carriers have been unreasonable and unlawful to the extent that they have varied from these.

"Reparation from March 21, 1912, will be awarded herein upon the basis of the rate found reasonable by the Commission."

The Commission has also issued a conference ruling amending its regulation regarding reparation allowances, to read as follows:

"Reparation under informal proceedings will be authorized in instances where the tariff rate has been applied, upon the filing of an application by the carrier or carriers which participated in the transportation of the property in question, containing an admission that the rate charged was unreasonable, supported by a statement of the facts substantially showing that the charge demanded for the transportation service performed was excessive, that within a reasonable time a tariff naming the rate upon basis of which adjustment is sought has been published and that such rate has been made lawfully applicable via the route over which the shipment moved. The Commission's order for refund on account of a reduced rate or changed tariff regulation will require the maintenance of such rate or regulation for at least one year."

Rate Suspension.

RECENT rate suspensions include Louisiana lumber rates from Alexandria, La., to New Orleans and other Louisiana points; to Cairo, Ill., St. Louis and other points; fence posts from stations in Arkansas to Kansas City, Mo., and other points; joint rates on lumber from points in Mississippi to Trunk Line territory; rates on lumber from various points in Oregon and Washington to a number of Eastern destinations; certain class rates from points in Pennsylvania, to St. Paul and other destinations; break-bulk rates on grain and grain products from Milwaukee and other points in Wisconsin to Boston, New York, Philadelphia, Baltimore and other Eastern points; grain rates between Iowa, South Dakota and Minnesota points to points in Illinois and Wisconsin; rates on starch from Cedar Rapids, Iowa and other Missouri River points; and rates on tile between points in Central Freight Association territory. The Commission has also suspended the proposed advances in oil storage rates of the railroads operating in Central Freight Association territory and has suspended the new tariff reconsignment and storage privileges on lumber and shingles at Minnesota Transfer, Minnesota.

Higher Rates Approved.

THE Commission has approved the following advances in rates: On knitting factory products from Chicago and nearby points to Little Rock and other Arkansas points; on nitrate of soda and potash salts from New Orleans to Little Rock, Arkansas; on empty tight cooperage barrels in Southern classification territory; on hay from North Dakota, South Dakota, Minnesota, Wisconsin, Illinois and Iowa to Chicago and other Western markets; on trunk covering materials including tin plate and sheet metal from Eastern shipping points to points in Washington, Oregon and other destinations; on asphaltic pitch, tar, cement and other roofing and paving materials from Chicago, Milwaukee and other points to destinations in North and South Dakota, Montana and other States, and on cantaloupes and other fruits and vegetables from Ruston, Louisiana and other points to Chicago, Illinois and other interstate destinations.

Recent Decisions.

THE Commission has rendered a decision to the effect that the proposed increases of rates on coke and coal in car loads from the mines on a portion of the Cumberland Valley Division of the Louisville & Nashville Railroad, effective by tariff schedules as of March 1, 1913, are without justification and the increases are proscribed.

Present rates are found reasonable and are prescribed for the next two years.

Advances in freight rates on cedar fence posts from Arkansas points of production to Kansas City, Omaha and Lincoln, proposed by the St. Louis, Iron Mountain & Southern and other railroads, have been ordered by the Commission to be cancelled by April 1st.

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The Commission has vacated its order of suspension issued against the advances in proportional rates by the Boston & Maine and other railroads on excelsior and excelsior wrappers from certain stations on the Bangor & Aroostook Railroad to Brownsville Junction, Me., and other points.

In the case of the Indianapolis Freight Bureau against the Cleveland, Cincinnati, Chicago and St. Louis and other railroads in which an effort was made to remove alleged discriminations against Indiana points in the matter of grain rates it appeared that the freight tariffs of the lines south of the Ohio River provided that proportionate or shrinkage rates would not be applied on shipments of grain or grain products on which milling-in-transit privileges had been accorded at points north of the Ohio River and east of the Illinois-Indiana State line.

It was held that there were no logical grounds upon which there could be denied to Indianapolis and other Indiana points the full use at the same aggregate through charge of the privilege which was accorded to all other points on the same route. The decision also stated that the commission had never recognized the right of a carrier to fix its rates to or from a given point on a higher level than they otherwise should be, in order to prevent one community from competing with another or to keep the products of one community out of a territory, the wants of which might be fully supplied by another community.

In the case of the Rhinelander paper against the Minneapolis, St. Paul and Sault Ste Marie Railroad, the Commission holds that the rate of 6 cents on pulp wood in carloads from Trenary, Delta Junction and Manistique, Mich., to Rhinelander, Wis., is not unreasonable. However, the Commission ordered a reduction of 1 cent to be made in the rate of 7½ cents on pulp wood in carloads from Whitedale, Bavee, Christiansen Spur and Spur No. 447, Mich., to Rhinelander.

Upon the complaint of the Wichita Wholesale Furniture Company the Commission held to be reasonable the rate of 50 cents on furniture in carloads from Fort Smith, Ark., to Wichita, Kan.

In the case of C. M. Patillo against the Atlanta & West Point and other railroads the Commission ordered the rate of 93 cents on household goods in carloads from West Point, Ga., to Waco, Tex., reduced to 77 cents per 100 pounds. The reduced rate is to take effect April 1st.

Freight rates on refined sugar by sea and rail routes from Boston, New York, Philadelphia and Baltimore to points in Arkansas, are held by the Commission to be unreasonable and certain reductions have been ordered.

The Commission has ordered railroads in the southwest and south to re-establish through and joint rates with a number of their tap line connections. These rates had been ordered cancelled.

STATE COMMISSIONS.

Illinois.—Before the State Railroad Commission, shippers are opposing the proposition to adopt the uniform bill of lading recommended by the Interstate Commission.

It is declared to be in conflict with the State law of Illinois in regard to the liability of the carrier in case of loss or damage where the commodity has changed in price after the original shipment was made. The carriers claim they seek only uniformity and are willing to make exceptions until such time as the statutes can be amended to fit the situation.

The Commission will wait until the federal body has shed more light on the situation, as to its final position on the bill of lading proposition. The uniform bill of lading has had an unpleasant experience from the beginning of the action of the Commission in recommending it and the course adopted by Illinois shippers may complicate matters further in other localities.

Louisiana—The following rule has been adopted by the State Railroad Commission:

"It shall be the duty of all railroad companies operating in the State of Louisiana, to return to shippers, within forty-eight (48) hours, all bills of lading, duly signed, covering shipments from our agency stations."

Maryland.—The annual report of the State Railroad Commission shows that for the year ended September 30th last, 179 were killed and 9,308 injured, an increase of 37, or 26 per cent killed and 1,180, or 14.4 per cent injured. The report says:

"Much the greater part of the injuries are trivial and mainly due to carelessness on the part of the public.

"In the case of steam railroads the increase in fatalities to the public is due principally to trespassing on the property of the companies. Passengers show an increase of one killed, but there is a marked decrease in the number of passengers injured.

"In the operation of electric railways persons killed number 33, an increase of 2; the injured, 6,365, an increase of 680; employes, 4 killed, the same as last year; injured, 1,367, an increase of 190.

"The grand totals are increased in the present report by the inclusion of telephone companies, which have not heretofore reported accidents."

The Commission states that in the year there were filed in the regular docket 249 cases, of which 215 were closed. The cases on the correspondence docket numbered 268, all except 41 of which were closed. The report reviews some of the more important cases decided by it, and in an interesting table shows that there are 200 corporations under the jurisdiction of the Commission and that these, including the Pullman Sleeping Car Company, the railroads and express companies, have a total capitalization of $1,428,655,886.

It is recommended that the law providing for the appointment of a member of the Commission's legal department to represent the people in cases before it be amended so that the officer in charge of such cases may be entirely independent of the Commission.

Counsel for the Public Service Commission, has placed in the hands of the Circuit Court, a petition of the Commission, asking the court to restrain the Baltimore & Ohio Railroad Co. from going ahead with its $63,250,000 bond issue without submitting the matter to the Commission and securing its approval.

The case will ultimately go to the Court of Appeals, passing on the question whether the

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company's charter granted in 1827 and giving the company authority to issue securities from time to time as they may be needed, puts the company beyond the jurisdiction of the Public Service Commission as far as the issue of securities is concerned.

Nebraska.—In its annual report, the State Railway Commission recommends to the Legislature that it be given a number of new powers chief of which is the power to include the awarding of reparation in cases where the rates are found to be excessive or discriminatory. Should the Legislature give the Commission this power, all cases of this nature will in future be heard by the Commission instead of the regular courts.

When, in 1909, the Legislature enacted a "stringent" anti-pass law, some enterprising member slipped in a little "joker" which well nigh renders abortive any attempt to prosecute an offender of the law.

The joker places the burden of proof upon the State and makes the prosecuting attorney prove the use, as well as the acceptance, of the railroad pass in order to secure conviction. Since all the proofs are in the hands of the railroads and are not accessible to the State, the law has been practically a dead letter. The Railroad Commission, in its lists of recommendations, asks the Legislature to remove the "joker." Among other recommendations made are these:

An amendment to include all common carriers under the jurisdiction of the Commission in the statistical report to be made to the governor. To provide that no new rate schedule or classification may be made effective until approved by the commission.

To provide for the punishment of shippers and railway officials and employees guilty of false billing of freight.

The enactment of a law providing track connection to other industries beside grain elevators on practically the same terms as are now enjoyed by grain elevators exclusively.

Provisions for taxing costs in cases arising before the Commission wherein it becomes necessary to subpœna witnesses and disposing of funds accumulating therefrom.

Nevada.—The Railroad Commission in an opinion and order written by Commissioner Shaughnessy, has ordered the Southern Pacific Company within Nevada to reduce the present local one-way passenger fares between all points on its standard gauge main and branch lines from 4 and 5 cents a mile to 3 cents a mile. Chairman Barline dissents from the majority opinion on the ground while entirely favorable to a reduction to 3 cents a mile on the main line, he is opposed to any reduction in fares on the branch lines.

New Jersey.—In its annual report the Board of Public Utility Commissioners, in discussing the proper methods to be employed in the elimination of grade crossings states that:

"A solution of the problem of grade crossing elimination will be hastened by a recognition of the justice of distributing the cost between the carriers and the public, as represented by the State and the municipalities. There are cases where the grade crossings within the past two years have been forced on the carriers against their will. It is indisputable that in such cases the entire cost of removal could not be put upon the carrier without a gross violation of the dictates of common fairness. Where progress has been most marked in eliminating grade crossings, as in Massachusetts, there has been an equitable partition of the cost of elimination.

"Moreover, it must not be forgotten that the investment in grade crossing elimination cannot be had for nothing. If the companies are to spend the vast amounts such elimination requires, the consumer must expect in rates and fares to contribute to the cost. If the companies at their own expense exclusively pay the cost, the indemnity they may reasonably exact will be heavier than if the public contribute in the first instance to the project .and thereby obtain some rightful control over the process of elimination."

New York.—Reductions in commutation rates between Westchester County points and New York City by the New York Central & Hudson River Railroad have been ordered by the Public Service Commission, Second District. The reduced rates will result in the establishment of the tariffs that were in effect on June 30, 1910.

The orders were made upon complaints filed in the New York Central case by the mayors of Mount Vernon and Yonkers, residents of Peekskill and White Plains, and in the New Haven case upon the complaints of the mayors of Mount Vernon, New Rochelle, the Village of Port Chester and the towns of Rye and Harrison, and the residents of the City of New Rochelle and Village of Port Chester.

Following the above orders a further order was issued requiring the New York Central & Hudson River Railroad, in changing its rates, to restore similar rates from Poughkeepsie and points as far south and Peekskill on the Harlem Division and from White Plains to Pawling on the Harlem Division, which existed prior to the increase of 1910.

In its resolution, the Commission recites that no specific complaint was made before the Commission touching the commutation and these other rates, but the evidence in principle, covers such rates, and it appears to the Commission from all of the evidence that the change in commutation and other rates between the sections of territory named and New York City, made in 1910, was unreasonable, and that such rates should be restored to the point at which they stood before that increase.

The Commission has authorized the New York, Ontario & Western Railway Company to issue $2,880,000 in bonds and equipment obligations, and the New York and Stamford Railway Company to issue $573,000 mortgage bonds for paying loans and notes for capital purposes.

The complaint made by Tompkins C. Delavan and others, asking the Commission to cancel the purchase by the New York, New Haven & Hartford Railroad from the New York Central and Hudson River Railroad, of 23,035½ shares of stock of the Rutland Railroad has been dismissed.

Ohio.—The State Railroad Commission has authorized the issue of $7,000,000 bonds by the Panhandle. The bonds will not be issued immediately. They will be used as follows: $4,000,-

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000 for construction and equipment purposes and $3,000,000 to provide for the issue of Steubenville and Indiana bonds maturing January 1, 1914.

It has also authorized the Cleveland Short Line Railway Company to issue its common capital stock of the par value of $1,000,000 to be sold at not less than par and the proceeds to be used for the completion of a double-track line.

Pennsylvania.—The State Railroad Commission has not as yet rendered its decision on the application of the complainants in the Philadelphia anthracite rate case for the appointment of an accountant to examine the books of the Reading Railway to determine whether cost sheets are being kept as alleged in Wharton Barker's affidavit.

It will be recalled that at the special hearing a few weeks ago, when the affidavit was submitted, Commissioner Pennypacker said the request would be acted upon by the entire Commission. An indefinite adjournment was then taken for that purpose. The filing of briefs was also postponed for the same reason.

Should the Commission decide against the appointment of an accountant, it is understood that the complainants are ready at any time to file their brief. The appointment of an accountant, of course, would give an entirely different turn to the whole case and reopen it from an altogether different point of view.

Texas.—A hearing will be held by the Railroad Commission on March 11th, on amendments to freight tariffs affecting rates on classes and commodities, between Galveston, Texas City, Velasco and points on the St. Louis, Brownsville & Mexico, the Rio Grande, the San Antonio & Rio Grande and the San Benito & Rio Grande. These amendments are intended to eliminate all provisions for the observance of a differential over Houston, (meaning the Galveston differential) in arriving at rates between the ports named and points on the railroads mentioned.

Only south Texas lines have been named, because they do not pass Houston to reach Galveston. The differential on cotton over the Brownsville & Mexico is not now in effect having been replaced by a uniform rate of 48 cents to both Houston and Galveston. This is cited as further evidence of the intention to make the abolition applicable to all Texas lines. With other lines the maximum rate from points within a distance of 100 miles of Houston is 45 cents, and to Galveston, 51 cents, a difference of 30 cents per bale.

LEGISLATION.

National.—The past month has been prolific in proposed new legislation affecting the railroads. Not only does Congress appear to be unusually active along these lines but State legislators are busily engaged formulating laws of a regulative character. At Washington there is an atmosphere of uncertainty manifested, owing to the change of administration, but this has apparently not halted individual efforts to extend the regulation of interstate commerce.

President Taft's veto of the Gillingham-Burnett Immigration Bill is a matter of interest to all railroad officials as the passage of such a bill would undoubtedly have affected the passenger traffic of those roads interested in transporting immigrants to interior points. The bill imposed a literacy test upon all foreigners seeking a home in America and it was this particular limitation that caused the President to veto the entire bill. The veto message was accompanied by a letter to the President from Secretary Nagel, denouncing the literacy test as a radical provision based upon a fallacy in undertaking to apply a test which is not calculated to reach the truth and to find relief for a danger which really does not exist.

The legislation proposed by the Stanley Steel Investigating Committee to regulate switching charges and to prohibit railroads from owning industrial corporations or vice versa, appears to be meeting with considerable opposition and a number of railway officials and others have already appeared before the committee.

It is understood that recommendations in favor of several amendments to the Sherman anti-trust law have practically been decided upon by the Senate Commission on Interstate Commerce. While no definite action is reported, it is understood that the Committee are in substantial agreement for an amendment looking to the maintenance of the principle of competition rather than the regulation of monopoly. There also appears a practically unanimous opinion in support of the contention that the present law, as a whole, should not be disturbed but that changes should be made in the form of supplemental action.

The hearings on the proposed Physical Valuation Bill continued during a large part of the month and are referred to in a more extended manner in another section of this issue. That some legislation of this character will be passed appears certain and a number of the railroad officials who appeared before the committee, spoke in favor of a physical valuation. The bill in question is known as the LaFollette-Adamson Railway Valuation Bill, and directs the Interstate Commerce Commission to investigate and report the value of all the property owned or used by every common carrier. On the 17th of the month this bill was amended so as to cover telegraph and express properties.

The Kenyon Uniform Freight Classification Bill has also been under discussion during the month and objections made to it by railroad officials and others on the grounds that such a classification has already been undertaken by the carriers and is proceeding as rapidly as possible. Just what prompted this attempt at legislation is not clear as it is well understood that the work of the formulation of a uniform classification in which the railroads are now engaged is the result of instructions issued by the Interstate Commerce Commission and appears to be proceeding in a satisfactory manner. Formidable opposition to the bill comes from the National Industrial Traffic League which is urging shippers throughout the country to use their influence to defeat it.

Congressman Peters, of Massachusetts, has a bill pending before the House Committee on Interstate Commerce which provides for the establishment of deputy interstate commerce commissioners in the principal cities or districts of the United States, who shall act as arbitrators between shippers and railroads. It is understood this bill has the approval of the Interstate Commerce Commission and is widely

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endorsed by Chambers of Commerce and commercial bodies. Congressman Peters has also introduced another bill which proposes to compel railroad corporations to receive their mileage books for transportation on all lines owned or operated by them. This bill has the endorsement of the Commercial Travelers' Association. It is also understood that legislation is soon to be asked by Congress which will empower the Interstate Commerce Commission to send representatives to all meetings of railroad traffic associations and committees.

Two bills affecting operation have been introduced during the month, one by Representative Dent, which provides that it shall be unlawful not later than five years from the date of its passage for an interstate railroad to use any locomotive or car for moving passenger traffic not equipped with some safety device for the prevention of derailment. The bill would permit an increase in passage fares to compensate for the increased safety. Representative Hughs, of West Virginia, has introduced a bill which provides that from and after the first day of January, 1915, it shall be unlawful for any interstate railway to use on its line any passenger, express or baggage car in interstate traffic which is not made of steel. The penalty provided for the hauling of a car not of steel after the prescribed date is $500. The bill further provides, however, that the Interstate Commerce Commission may from time to time, for good cause, extend the period within which any common carrier shall comply with the provisions of the act.

A general investigation of the compensation to be paid railroads by the Government for the transportation of mail has been begun by a joint congressional committee. The railroads are opposed to the payment by space plan which is advocated in some quarters, declaring it would be unfair to the Government and also to the railroads. It has pointed out that such a plan would result in 795 different rates for as many different railroads, and precipitate endless confusion. It was asserted at one of the hearings that under the present system the railroads were actually under paid to the extent of $15,000,000 a year for mail transportation.

The workmen's compensation bill practically unamended, has passed the Senate and has been reported favorably by the House Judiciary Committee. It fixes damages to be paid by corporations for injuries to workmen received in their service without requiring the bringing of suit. Express company employees have been included in the law.

Senator Newlands, an advocate of the no-toll provision of the Panama Canal Bill, has introduced a joint resolution and bill defining the attitude of the United States as to foreign shipping. Under the Newlands bill the portion of the cost of canal operation charged to foreign shipping would be proportionate to the amount of foreign tonnage passing through the waterway.

The River and Harbor Appropriation Bill carrying $40,800,000 has been passed by the House of Representatives without important amendment.

Canada.—Premier McBride has introduced a bill in the British Columbia Legislature to guarantee for the Canadian-Northern Railway an additional $10,000,000 for terminals. The government, in its original bill, dealt with the Canadian Northern and guaranteed the bonds for the main line up to $35,000 per mile from Yellowhead Pass to the Gulf of Georgia. The bill brought down provides for an additional guarantee of $10,000,000 at the rate of 4½ per cent for terminals to be constructed on a vast scale at Vancouver, Port Mann and Victoria, and for a branch line from Port Mann down to a point near Stevenston on the Fraser River.

Colorado.—A bill has been introduced in the Legislature to establish maximum rates and make railway tickets negotiable by legalizing their sale among individuals. The latter provision would permit wholesale ticket-scalping and if passed the carriers declare that they will have no choice but to discontinue all special tourist rates. It is asserted that if these bills pass that the railroads of Colorado would have great difficulty in operating, that stop-overs on east and west travel would be denied in Colorado and that railway construction in the State would be discontinued.

Connecticut.—Government ownership and operation of the New York, New Haven & Hartford Railroad is advocated in a resolution introduced in the General Assembly. The resolution recites that the railroad is the principal means of transportation in the several New England States, and urges that steps be taken immediately "to acquire the New York, New Haven & Hartford road and operate and manage the same and serve the American people, and do the same at cost price."

A resolution favoring Government ownership and operation of the coal fields was also put in. Both resolutions provide for memorializing Congress.

Illinois.—According to information received by Chicago railroad officials, a bill will be introduced in the Legislature within the next few weeks providing for the use of electric headlights on all locomotives operated within the State. It is expected there will be strenuous opposition to such a law, as railroad engineers are of the opinion that a broad measure not specifying a particular kind of headlight, would be preferable.

A bill has been introduced into the State Legislature which provides for a State Board of Control which is to have mandatory jurisdiction over the bond and stock issues of all railroad companies doing business in Illinois. The board is to be composed of the railroad and warehouse commissioners, the Governor, Attorney-General, Secretary of State, State Auditor and State Treasurer. The bill provides that before there can be an increase of capital stock, or a flotation of bonds, or coupon notes, railroad companies must make formal request of this board.

Massachusetts.—A bill introduced by "James Mackaye and another," provides that the State acquire the Boston & Maine through three per cent bonds; that powers of the board be given to the Governor, Railroad Commission chairman and chairman of port directors; that rates and wages be the same as on other roads in North Atlantic States; civil service apply to employees; any direct deficit to be met from

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bond proceeds, and surplus to be shared between patrons of road, on receipts kept by them, and the employees.

The sub-committee of the Committee on Railroads appointed to re-draft the Washburn mandatory rate bill has had a satisfactory conference with the railroad commissioners and the counsel for the railroads and the street railways. It has left it to Chairman Macleod of the Railroad Commission to undertake to draft a bill that will strengthen that board, so that it can deal with railroad conditions in a way satisfactory to the public.

New Jersey.—The seven corporation bills of Governor Wilson designed to curb trusts have been passed by both houses of the State Legislature. The Democrats united in voting down all amendments offered.

New York.—Assemblyman Levy has introduced a bill giving the Public Service Commission the power enjoyed by the Interstate Commerce Commission to suspend rate schedules filed by railroad companies. The bill is backed by the administration, and the Public Service Commission, Second District, and was drafted by ex-Judge Hale of that commission. A similar bill was passed last year but was vetoed by Governor Dix.

Another bill has been introduced by Assemblyman Jones, which provides a fine for the non-delivery of freight on schedule time. The bill provides that carload shipments must be delivered to the consignee or connecting railroad within a time not exceeding twenty-four hours for every fifty miles of travel.

Pennsylvania.—The new railway law bill which has been introduced in the State Legislature proposes to regulate public service companies at every point including service, equipment, extension as well as stocks and bonds and rates. It is regarded as one of the most comprehensive railway measures ever introduced in a State Legislature.

Texas.—Governor Colquitt has vetoed the bill to permit the merger of the Missouri, Kansas and Texas and the Texas Central Railways. He declares the consolidation unconstitutional.

Vermont.—The State Legislature has killed the bill providing for an interchange of mileage books on Vermont railroads. Notwithstanding the fact that the bill was endorsed unanimously by the recent conference of New England Governors, it lost by a large majority. Governor Fletcher has signed a resolution of the Legislature authorizing the appointment of Vermont's three representatives on the proposed New England railroad conference.

LEGAL.

Government Renews Suit Against Anthracite Carriers.—The Department of Justice has renewed its fight against the anthracite roads by filing in the United States District Court at Trenton, a civil suit against the Delaware, Lackawanna & Western Railroad Company, and the Delaware, Lackawanna & Wesetrn Coal Company, charging violations of both the Sherman anti-trust law and the commodities clause of the Interstate Commerce Act.

The suit represents an effort to dissolve the arrangement made by the railroad in 1890 by which it met the prohibition in the commodities clause against any railroad transporting in interstate commerce coal purchased by it or produced by its mines. The action is therefore a general test of the commodities clause, and shows the intention of the Attorney-General to try out in the government's petition, upon which the Supreme Court of the United States recently handed down a decision, the two charges which were dismissed without prejudice. These related first to alleged violations of the commodities clause and second to alleged violations of the Sherman law through ownership by the Reading Company of the Central Railroad of New Jersey and by the Erie of the New York, Susquehanna & Western.

In its present petition, the government asks that the courts adjudge that the Lackawanna road has not properly divested itself of interest in coal purchased from others or produced by it, that its transportation of this coal, even though title has nominally passed to the coal company, has constituted an unlawful transportation of the commodity. It is also sought to enjoin the defendants from further transporting any anthracite coal which is the product of mines owned by the railroad company or purchased by it from others and sold, transferred or delivered to the coal company in accordance with the standing agreement.

Railroad Heads Plead Not Guilty.—John D. Lindsay, of counsel for President Mellen, of the New York, New Haven & Hartford Railroad Co., and President Chamberlin, of the Grand Trunk Railway Co., of Canada, appeared before Judge Mayer in the United States District Court at New York recently, and entered pleas of not guilty for both of the defendants. In addition, Mr. Lindsay made an application for the appointment of a commission to take testimony from directors of the Grand Trunk Railway and from certain bankers in England as to the reason for the abandonment of work on the Southern New England Railroad extension by the Grand Trunk Railway. Mr. Lindsay also submitted affidavits that the Grand Trunk Railway was committed to improvements to the amount of about $30 000,000 and because of financial stringency in London could not carry out these obligations, including the completion of the Southern New England Railroad route.

Federal Suit Against Erie Railroad.—Attorney-General Wickersham has filed in the Commerce Court a suit against the Erie Railroad, which was alleged to have granted passes to representatives of trans-atlantic steamship companies. The petition of the Attorney-General says:

"True it is that under the proviso in the first section of the act to regulate commerce two carriers subject to the act may interchange free transportation for their respective employees. But the trans-atlantic steamship companies are not carriers subject to the act to regulate commerce. Their entire business is conducted upon the high seas, between ports of the United States and ports in certain European countries. They do not take freight from railroads on through bills of lading, nor are they otherwise

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associated with any railroad in such a manner that both are under a common control, management or arrangement for continuous carriage or shipment. Consequently the trans-atlantic steamship companies are not carriers within the meaning of section L of the act, and their employees may not lawfully be given free transportation by other carriers which, like the Erie Railroad Company, are subject to its prohibitions."

The Commerce Court has also resumed its hearings in the Tap Line cases. In other cases on the docket, the court took action as follows:

Atchison, Topeka & Santa Fe Railway Company et al. versus United States, Interstate Commerce Commission, et al, interveners, to set aside an order of the Interstate Commerce Commission reducing from $30 to $7.50 per car the charge of refrigeration of citrue fruits where such fruits are pre-cooled and pre-iced by shippers.

George H. Davis, et al., versus United States, respondent, Interstate Commerce Commission, intervener; to set aside an order of the Interstate Commerce Commission prescribing the amount that may be paid by carriers as allowance or compensation for services rendered in the elevation of grain at Kansas City, Mo., and other Mississippi River points, or points in territory adjacent thereto. Dismissed by stipulation without prejudice.

Southern Railway Company, et al., versus United States Interstate Commerce Commission et al., interveners; to set aside an order of the Interstate Commerce Commission prohibiting the petitioners from charging higher rates on freight between Newport News, Va., and points in certain prescribed territory than between Norfolk, Va., and the same points. By agreement of counsel, case was taken under advisement for final determination on the record and arguments heretofore presented upon application for preliminary injunction.

Baggage Liability.—An effort is being made to procure a decision from the Supreme Court of the United States to the effect that the Hepburn Rate Law allows railroads to limit their liability for loss of baggage in return for a low passenger rate. Attorneys for the Oregon Short Line have appealed to the Court from a decision by the Utah Supreme Court. In the case in question, Mrs. Charlotte A. Homer of Salt Lake City, sued for the loss of $700 worth of wearing apparel carried as baggage on a journey from Salt Lake City to Los Angeles. The Utah courts would not permit the railroad to offer in evidence the agreement on the ticket that, in return from the rate at which the ticket was sold, the liability in case of loss of baggage would be limited to $100. The Supreme Court recently decided that such limitations could be placed on freight and express shipments.

Anti-Trust Suit Against Chicago Board of Trade.—The Chicago Board of Trade, in a civil anti-trust suit filed at Chicago by the Government on February 11th, is charged with violating the Sherman law by arbitrarily fixing, during the hours the exchange is closed, the prices of wheat, corn, oats and rye, to be received in Chicago.

The Government's petition in equity asks the United States District Court for a temporary restraining order to be followed, after final hearing, with a permanent injunction prohibiting the fifteen hundred and more members of the Board from continuing an alleged unlawful conspiracy to destroy competition and restrain interstate commerce.

As the Board is open less than four hours, or only one-half of the ordinary business day, it is declared that the prices fixed control the bids of grain dealers for the other half of the business day. The rule has resulted, it is charged, in a conspiracy and combination to prevent competition.

Central Vermont and New Haven Roads Fined under Safety Appliance Act.—A jury in the United States District Court at Boston, has returned a verdict of guilty against the Central Vermont Railway Co., for violations of the Federal Safety Appliance Act. There were three counts in the information prosecuted by Assistant United States District Attorney Garland, and the penalties aggregate $300.

There was a verdict also against the New Haven Railroad Co. for similar offenses carrying with it penalties of $300. Both verdicts were directed by the court.

Heavy Fines for Rebating.—Harold R. Wakem, representing Wakem & McLaughlin, forwarding agents at Chicago, who recently pleaded guilty of accepting rebates from the Chesapeake & Ohio Railroad, has been sentenced by the Federal District Court at New York to one day's imprisonment and a fine of $1500. William L. Divine foreign freight agent of the Chesapeake & Ohio Railroad, who paid the rebates, was fined $15 000.

Alaska Carriers' Case Protested.—The Department of Justice is making a vigorous protest to the Supreme Court against the decision of the United States District Court for Alaska which set aside indictments against an alleged Alaskan "transportation trust." The ground is taken that before the Federal Government could indict for alleged transportation discriminations, the questions must be passed upon by the Interstate Commerce Commission. The issue is new and regarded as extremely important.

Commodities Suit Dropped.—The United States District Court at Philadelphia has dismissed without prejudice the amended bill of complaint filed by the Federal Government under the commodities clause of the Hepburn Railroad Act against the Lehigh Valley Railroad. The Government, in the bill, sought to bring about a complete separation of the Lehigh Valley Railroad Company from the production and sale of anthracite coal.

The action of the Court was in accord with an agreement reached between J. C. McReynolds, of New York, special assistant to the Attorney-General, and counsel for the railroad company.

Government Opposes Modification of Coal Trust Decision.—Briefs have been filed in the United States Supreme Court by several anthracite railroads in support of their motion for a modification of the court's decision in the

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anthracite trust case. The motion and grounds therefor were set forth by Dow, Jones & Co., January 22d. The court ordered all of the 65 per cent contracts canceled. The defendant roads ask that such contracts with the lessees of coal lands owned by the railroads or by coal companies controlled by the railroads be excepted. They argue that as the carriers originally owned the lands and their coal contents, these contracts could not be any part of a conspiracy to restrain trade or monopolize production. The contracts are incorporated in the leases and their cancellation would force the lessees to make new arrangements or go out of business. The lessees are said to have asked for the modification.

Replying to the brief of the coal companies, the Government opposes all modifications except in the case of the contract between the Pennsylvania Coal Co. and the Elk Hill Coal & Iron Co.

Grand Trunk Seeks Dissolution of Southern New England.—The Grand Trunk Railway has filed in the Superior Court, at Concord, N. H., a bill in equity to test the legality of the incorporation of the Southern New England Railway Company. The bill quotes the articles of incorporation filed with the Secretary of State and says that what purports to be the signature of the Grand Trunk by Charles M. Hays, president, is not the legal and binding signature of the Grand Trunk, but was his unauthorized act, that it was beyond the power of the company to bind itself to the purchase of the shares of the capital stock of the alleged railroad, and that the act therefore is null and void.

The present action affects only the proposed extension to parallel a section of the line of the Boston & Maine in New Hampshire.

ORGANIZATIONS.

Candidates of the Traffic Club of Chicago for 1913.—The Nominating Committee has announced the following Regular Ticket to be voted on at the annual election of the Traffic Club of Chicago, Tuesday, March 25th:

President, Guy S. McCabe, general western agent, Pennsylvania R. R.; secretary, W. H. Wharton, commercial agent, N. C. & St. L. Railway; treasurer, Chas. B. Kopper, general freight agent, Goodrich Transit Company; first vice-president, W. M. Hopkins, manager transportation department, Board of Trade; second vice-president, Frank W. Smith, member, Uniform Classification Committee; third vice-president, L. Richards, traffic manager, Quaker Oats Company.

Millers Oppose Milling-in-Transit Rule.—At the recent annual convention of the Wisconsin State Millers' Association much opposition was developed to the rule governing "milling-in-transit" as made by the Interstate Commerce Commission. The millers assert they cannot work under the rule.

Officers chosen were: President, R. E. York, Portage; vice-president, H. F. Gustavus, Oshkosh; secretary-treasurer, E. J. Lachmann, Neenah.

February Meeting of New York Railroad Club.—The February meeting of the New York Railroad Club was held in the building of the United Engineering Societies, on Friday evening, February 21st, and was devoted to further promotion of the Safety First campaign, which has been a subject of such widespread interest in the United States. The paper for the evening was by Mr. J. W. Coon, of Baltimore, assistant to the general manager of the Baltimore & Ohio Railroad and chairman of the General Safety Committee of that road. It was supplemented by lantern slide illustrations by C. W. Egan, general claim agent of the B. & O. Prominent railroad officials participated in the formal discussion of the subject.

Annual Dinner of Philadelphia Traffic Club.—The principal speaker at the annual dinner of the Philadelphia Traffic Club, held on the evening of February 1st, was J. C. Clements, of the Interstate Commerce Commission. He declared that: "No one will deny that the Interstate Commerce Commission law and its various amendments have proven a benefit to the railroads and shippers alike; even those who at first vigorously opposed the power of regulating rates are now among the warmest supporters of the commission." Mr. Clements traced in detail the history of the commission. Other speakers included W. H. Manss, formerly traffic manager of the Chicago, Burlington and Quincy Railroad.

Y. M. C. A's. to Aid Safety Movement.—As a result of a conference held at the headquarters of the Traffic Club of Chicago, the railroad department of the Chicago Y. M. C. A. will cooperate in the "safety-first" movement on various railways throughout the country.

Among those present at the meeting were R. A. Richards, in charge of the safety campaign on the Northwestern line; L. F. Shedd, chief of the safety department of the Rock Island System, and W. N. Northcott, railroad secretary of the Y. M. C. A. in Chicago. It is proposed that directors of safety campaigns on various railways shall write one or more lectures on the "safety habit" and that these shall be delivered at stated intervals before meetings of railway employes.

A lecture appealing especially to the general public also will be prepared. Each lecture will be illustrated either with moving pictures or stereopticon views. A number of the meetings will be held under the auspices of the Y. M. C. A.

A special effort will be made to place emphasis on the dangers attendant upon trespassing. The Chicago branch of the Y. M. C. A. is the first in the United States to arrange for co-operation with rail lines in lessening accidents.

Electrification of New Haven Lines.—In a recent address before the Foxboro (Mass.) Board of Trade on "The Building up of the New England Lines," Albin L. Richards of the New Haven said that four-track electrification between Boston and Providence by 1915 and extension through from Boston to New York, are intended improvements by the management of the New Haven.

From New York to New Haven, he stated,

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the work of electrification is nearly completed and between Providence and Boston it has been authorized. The engineering is under way and the area of construction begun. The bill for permission to make the improvement from Boston eastward is before the Legislature.

Railway Appliance Exhibit.—Announcement has been made that the annual exhibition of the National Railway Appliances Association will be held in connection with the convention of the American Railway Engineerig Association in Chicago, March 15th to 21st next. Both the Coliseum and the First Regiment Armory have been leased to provide for the requirements of the exhibitors. Most of the space already has been allotted.

To Reduce Mistakes in Shipping.—A sub-committee of the committee on ways and means of the Chicago Association of Commerce soon will be organized for the purpose of suggesting means whereby the improper marking of freight and careless methods in packing commodities intended for shipment can be reduced to a minimum. A number of railroads will be represented on the sub-committee.

Lake Carriers' Association Elections.—William Livingstone, of Detroit, has been re-elected president of the Lake Carriers' Association. All of the other officers have been named to serve again. New members of the Board of Directors are: W. Thomson and H. K. Oakes, Cleveland; Joseph B. Rodgers, Buffalo, and L. C. Waldo, Detroit.

G. A. Tomlinson, of Duluth, has been placed on the Executive Committee, to succeed the late J. J. H. Brown.

Nineteen vessels were lost on the great lakes last year, the president reported, and thirty-three persons were drowned or killed.

Annual Meeting of East St. Louis Relay Passenger Station Association.—At the annual meeting of the East St. Louis Relay Passenger Station Association, the election of officers resulted as follows: John Fitzgerald, superintendent terminals, Louisville and Nashville Railroad, was re-elected president. George W. Parker, of the Illinois Central Railroad, was re-elected vice-president. The following Executive Committee was elected: George W. Parker, general agent, Illinois Central Railroad; A. M. Schoyer, general manager, Vandalia Railroad; Henry Miller, general manager, Wabash Railroad.

The president re-appointed Mr. F. G. Cunningham as joint agent and station master. Plans for the improvement of the Relay Station, including a subway and the enlargement of all facilities on the train platforms, new restaurant and waiting rooms, lavatories, parcel room, etc., have been approved by the Commercial Club and are awaiting the final approval of the Illinois Railroad and Warehouse Commission.

Lumber Dealers Attack Parcel Post.—At the annual meeting of the Retail Lumber Dealers' Association, held in Pittsburgh, during the first week in February, the speakers criticised the parcel post, the mail-order lumber business and the delay in railroad freight shipments. A. L. Holmes, of Detroit, Mich., a director of the National Federation of Retail Merchants, said that no more money should be "wasted on the parcel post"; it was being tried as an experiment by the Post Office Department at a cost of $750,000. He said the system was a failure and was of no help to the retailer. A ship canal for the Ohio River was advocated.

New York Bar Association Favors Canal Arbitration.—At the 36th Annual Convention of the New York Bar Association held recently in Utica, N. Y., the following resolution was adopted:

Resolved, That we reiterate our adherence and devotion to the principle of international arbitration as heretofore announced by this association, and cordially approve the position of President Taft on the Panama question as stated in his speech of January 4th, and quoted in Mr. Butler's minority report.

Notable Dinner of Pittsburgh Traffic Club.—The annual dinner of the Pittsburgh Traffic Club, held on the evening of the last day of January, was in many respects the most notable banquet ever given by that organization. The speakers, whose remarks are referred to at greater length in another section of this issue, were Prof. Emery R. Johnson, of the University of Pennsylvania, and Arthur Brisbane, editor-in-chief of the Hearst newspapers. The guests comprised men prominent in railway, industrial and political life. George A. Post, president of the Railway Business Association was toastmaster.

Samuel Gompers on Arbitration.—Samuel Gompers, president of the American Federation of Labor, told the members of the National Civic Federation at the last session of their annual meeting that the workers of the United States would fight before they would accept such compulsory arbitration laws as have been proposed in legislative bills at Albany.

Mr. Gompers declared that the workingmen of the country would, under no conditions, consent to the enactment of laws which would curb or prevent their right to stop work when they chose. While agreeing that the prevention of strikes was highly desirable, he cautioned the Federation against falling into the error of believing that such disturbances could be escaped by curtailing rights and attempting to make natural activities unlawful.

In reply to a question from Marcus M. Marks, chairman of the conference, Mr. Gompers said that he confined his strictures entirely to compulsory arbitration, and that he approved highly of arbitration provided it could be voluntary.

The conference elected Miss Maude Wetmore, president of the women's department; Seth Low, president, and Samuel Gompers, John Hays Hammond, Benjamin Ide Wheeler, vice-presidents of the executive council; President Taft, Franklin MacVeagh, Elihu Root and Andrew Carnegie to represent the public on the executive committee; William D. Baldwin, William C. Brown, George B. Cortelyou and Samuel Mather of Cleveland, to represent the employers; Samuel Gompers, Warren S. Stone, of Cleveland; James M. Lynch, of Indianapolis; A. B. Garretson, of Cedar Rapids, Ia.; W. G. Lee, of Cleveland; William D. Mahon, of Detroit; W. S. Carter, of

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Peoria, Ill.; and others to represent the wage-earners.

The Santa Fe's Reading Rooms.—The Atchison, Topeka and Santa Fe has, during the past few years established five combined reading rooms and club houses and thirteen single reading rooms along the lines of its system. The cost of operating these rooms is about $25,000 a year, apart from renewals and the purchase of books and papers. The yearly cost of papers is about $2,500, and a similar amount is spent for books. The expense of putting on entertainments during the season of six months is about $8,000. The complete cost involved for a year's operation is $50,000.

The Santa Fe has found these club houses and reading rooms of great benefit to the men both morally and intellectually and they have undoubtedly proved an important factor in increasing their friendliness towards the Company which they serve. The following is the motto which has been adopted for all Santa Fe reading rooms:

"Give a man a bath, a book and an entertainment that appeals to his mind and hopes by music and knowledge, and you have enlarged, extended and adorned his life; and, as he becomes more faithful to himself, he is more valuable to the company."

Annual Dinner of Chicago Traffic Club.—The Sixth Annual Dinner of the Traffic Club of Chicago, held in Hotel La Salle Banquet Hall, Tuesday evening, January 28th, was the greatest ever given in the history of the organization, and in the opinion of impartial observers one of the greatest ever given by any Traffic Club. The total attendance was 640, including many distinguished railroad and industrial officials from all parts of the country.

The toastmaster was Mr. George A. Blair, general traffic manager, Chicago & Alton R. R., and the speakers were Col. J. Hamilton Lewis and Wilbur D. Nesbit of Chicago and John H. Atwood of Kansas City. Seated at the speakers' table were:

Edward S. Keeley, vice-president, Traffic Club of Chicago; Roger Sullivan, Chicago, Ill.; A. W. Goodrich, president, Goodrich Transit Co.; E. J. Buffington, president, Illinois Steel Co.; S. M. Felton, president, C. G. W. Railroad; John Maynard Harlan, Chicago, Ill.; J. M. Fitzgerald, president, Western Maryland Railway; F. B. Montgomery, president, Traffic Club of Chicago; A. J. Earling, president, C. M. & St. P. Railroad; Howard Elting, president, Chicago Association of Commerce; Fairfax Harrison, C. I. & I. Railway; Charles H. Wacker, president, Chicago Heights Land Association; B. A. Worthington, president, C. & A. Railroad; J. P. Ramsey, president, C. P. & St. L. Railway; C. W. Hotchkiss, president, Illinois Telephone & Telegraph Company.

The addresses made have been widely quoted in the press and were notable efforts in every respect and worthy of the great occasion.

Chicago Office for National Industrial Traffic League.—At the annual meeting of the National Industrial Traffic League, held at Chicago, Illinois, November 14th, 1912, the question of increasing the efficiency of the League was considered, and the report of the Finance and Auditing Committee, recommending the appointment of a paid official to carry on the work of the League, was approved.

Pursuant to this action, the Executive Committee has opened headquarters, as the office of the secretary-treasurer, at Room 413, Tacoma Building, 5 No. La Salle Street, Chicago, Illinois, and has engaged Mr. D. P. Chindblom, as assistant secretary, in charge of the office.

Shippers throughout the country are being urged by the National Industrial Traffic League to use their influence toward preventing the passage by Congress of what is known as the uniform classification bill.

A statement issued by the league relative to the proposed law says:

"We fear a legislative-made classification would be too rigid and not sufficiently flexible to meet the varying conditions existing in different territories and constantly arising under the varying demands of commerce. We believe the right of initiative in the making of the classification of freight should continue with the carriers through a proper body constituted for that purpose; that the work of the classification committee, or committees, should be subject to review upon formal complaint as to any specific item or items, or, upon its own initiative, by the Interstate Commerce Commission as now authorized by the act to regulate commerce."

ELECTIONS AND APPOINTMENTS.

Executive.

H. M. Atkinson, receiver, Atlanta, Birmingham & Atlantic.

E. F. Bisbee, vice-president, St. Louis National Stock Yards. Headquarters, National Stock Yards, Ill.

W. F. Bull, director, Southern Pacific Railroad.

D. L. Bush, vice-president, Chicago, Milwaukee & St. Paul. Headquarters, Chicago, Ill.

E. J. Chamberlin, president, Central Vermont. Headquarters, Montreal, Que.

E. A. Chittenden, member of executive committee, Central Vermont.

H. W. DeForest, member, executive committee, Texas & New Orleans Railroad.

E. Dickinson, president and director, K. C. M. & O., of Texas.

Bruce W. Duer, vice-president in charge of operation, Georgia & Florida. Headquarters, Augusta, Ga.

Dewey Dunn, receiver, Scott City Northern.

Raymond Dupuy, president, Norfolk and Western Ry.

H. B. Earling, vice-president, Chicago, Milwaukee & St. Paul. Headquarters, Seattle, Wash.

C. B. Ferry, assistant to vice-president, Chicago, Milwaukee & St. Paul. Headquarters, New York.

C. A. Goodnow, assistant to president, Chicago, Milwaukee & St. Paul. Headquarters, Chicago.

Jerome D. Greene, member of executive committee, Western Maryland.

William A. Harriman, director, Union Pacific Railway.

W. E. Higgins, acting vice-president and general manager, Lackawanna & Wyoming Valley. Headquarters, Scranton, Pa.

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G. C. Jones, vice-president, in charge of construction, transportation and maintenance departments, Central Vermont. Headquarters, St. Albans, Vt.

J. A. Jordon, acting president, Green Bay & Western Railroad.

M. C. Kennedy, director, Norfolk & Western.

Julius Kruttschnitt, chairman of executive committee, Texas and New Orleans Railway.

E. T. Lamb, receiver, Atlanta, Birmingham & Atlantic.

A. D. McDonald, deputy comptroller, Southern Pacific. Headquarters, San Francisco, Cal.

Lawrence Minot, director, New York, New Haven & Hartford. Headquarters, Boston, Mass.

F. W. Mohr, director, Southern Pacific Railroad.

Charles H. Morey, receiver, Manistee & Grand Rapids. Headquarters, Manistee, Mich.

N. J. O'Brien, vice-president and general manager, K. C. M. & O. of Texas.

George L. Peck, fifth vice-president, Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Pa.

W. H. Penfield, assistant to vice-president D. L. Bush, Chicago, Milwaukee & St. Paul Railway.

J. B. Rider, director, Pressed Steel Car Company. Headquarters, Pittsburgh, Pa.

C. B. Seger, vice-president and comptroller, Union Pacific. Headquarters, New York.

Edmound D. Sewall, vice-president, Chicago, Milwaukee & St. Paul. Headquarters, Chicago, Ill.

E. T. Smith, member of executive committee, Central Vermont.

Lewis J. Spence, director, Southern Pacific Company.

Percy R. Todd, president, Bangor & Aroostook. Headquarters, Bangor, Maine.

Frank Trumbull, director, Union Pacific Railroad.

W. H. Wadden, vice-president, Denver, Northwestern & Pacific Railroad.

W. H. Wagner, receiver, Scott City Northern.

H. V. Wallace, co-receiver with the Continental Trust Company, Denver, Colo., of the Denver, Laramie & Northwestern.

J. N. Wallace, member of executive committee, Texas and New Orleans Railway.

A. R. Whaley, vice-president in charge of operation, New York, New Haven & Hartford. Headquarters, New York.

Charles A. Wickersham, president, Georgia Railroad.

John Skelton Williams, chairman board of directors, Georgia and Florida.

R. Lancaster Williams, president, Georgia & Florida. Headquarters, Richmond, Va.

W. A. Worthington, director, Southern Pacific Railroad.

Financial.

C. T. Earnest, secretary and treasurer, Georgia & Florida. Headquarters, Augusta, Ga.

Walter E. Hackett, local treasurer, Toronto, Hamilton & Buffalo Railway. Headquarters, New York City.

George O. Lilley, treasurer, Louisiana Railway & Navigation Company. Headquarters, Shreveport, La.

F. K. Mays, treasurer, Atlanta, Birmingham & Atlantic R. R.

Thomas Price, assistant secretary, Union Pacific. Headquarters, New York.

Accounting.

W. M. Baugh, auditor, Liberty-White. Headquarters, McComb City, Miss.

D. M. Davis, statistician, Frisco.. Headquarters, Houston, Texas.

Fred E. Dunham, chief clerk, Toledo office, Hocking Valley. Headquarters, Toledo.

T. O. Edwards, auditor, Southern Pacific. Headquarters, San Francisco, Cal.

Howard Humphreys, chief clerk, D. T. & I. Headquarters, Springfield.

F. P. Johnson, assistant general auditor, Missouri Pacific and the St. Louis Iron Mountain & Southern. Headquarters, St. Louis, Mo.

Hugh Neill, clerk and secretary, Southern Pacific. Headquarters, San Francisco, Cal.

T. M. Niven, auditor of disbursements, Missouri Pacific and the St. Louis Iron Mountain & Southern. Headquarters, St. Louis, Mo.

R. Kemp Slaughter, auditor, Atlanta, Birmingham & Atlantic Railroad. Headquarters, Atlanta.

Engineering and Mechanical.

W. B. Allen, inspector of transportation, Chesapeake & Ohio. Headquarters, Peru, Ind.

Robert J. Barry, inspector of transportation, Louisiana Lines Southern Pacific. Headquarters, New Orleans, La.

G. Beckingham, superintendent of track, Grand Trunk. Headquarters, Montreal.

F. L. C. Bond, division engineer of eastern lines, Grand Trunk Railway. Headquarters, Montreal, Que.

F. S. Burroughs, engineer, Public Service Commission. Headquarters, Tacoma.

F. T. Chase, master mechanic, Smithville district, Missouri, Kansas & Texas Railway of Texas. Headquarters, Smithville, Texas.

M. T. Clements, engineer in charge of grade operation, Northern Pacific Railway. Headquarters, Spokane, Wash.

J. Cotter, supervisor of track, Grand Trunk. Headquarters, Battle Creek.

J. H. Dougherty, acting master mechanic, Waco District, Missouri, Kansas & Texas Railway and Texas Central. Headquarters, Waco, Texas.

J. C. Douval, apprentice instructor, Sunset-Central shops. Headquarters, Houston, Texas.

D. J. Drury, general foreman locomotive department, Rock Island System. Headquarters, Cedar Rapids, Ia.

C. A. Dunham, assistant signal engineer, Lake District, Great Northern Railway. Headquarters, St. Paul, Minn.

J. O. Ely, roadmaster, Lexington and Eastern Division of the Louisville & Nashville.

H. Ferguson, superintendent of track, Ontario Lines, Grand Trunk. Headquarters, Toronto, Ont.

O. M. Foster, master mechanic, Lake Shore Division, Lake Shore & Michigan Southern. Headquarters, Collingwood.

M. D. Franey, division master mechanic, Lake Shore & Michigan Southern. Headquarters, Elkhart, Ind.

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A. L. Grandy, chief engineer, Pere Marquette. Headquarters, Detroit, Mich.

George O. Hammond, assistant to mechanical superintendent, New York, New Haven & Hartford. Headquarters, New Haven, Conn.

W. A. Hawley, division engineer, Erie & Ashtabula Division, Northwest System of the Pennsylvania Lines West of Pittsburgh. Headquarters, New Castle, Pa.

E. G. Hewson, division engineer, Grand Trunk. Headquarters, Toronto, Ont.

H. E. Holt, assistant chief engineer, Chicago, Milwaukee and St. Paul. Headquarters, Chicago.

R. C. Hyde, master mechanic, Louisiana Division, Chicago, Rock Island & Pacific Railway. Headquarters, El Dorado, Ark.

H. D. Jackson, general master mechanic, Alabama, Tennessee & Northern and the Tombigbee Valley. Headquarters, Panola, Ala.

George H. Jennings, assistant chief engineer, Elgin, Joliet & Eastern Railway.

E. G. Johnston, assistant division engineer, Eastern Division, Northwest System, Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Pa.

J. H. Johnston, superintendent of bridges and buildings, Grand Trunk. Headquarters, Montreal.

N. W. Jones, inspector of transportation, Philadelphia & Reading Railway.

B. F. Kuhn, assistant division master mechanic, Lake Shore and Michigan Southern. Headquarters, Collingwood.

M. A. Long, assistant to chief engineer, Baltimore & Ohio-Cincinnati, Hamilton & Dayton System. Headquarters, Baltimore, Md.

W. S. MacCulloch, assistant engineer, Grand Trunk Railway. Headquarters, Montreal, Que.

D. McCooe, superintendent of track, Grand Trunk. Headquarters, Toronto, Ont.

J. Nolan, supervisor of track, Grand Trunk. Headquarters, Valparaiso, Ind.

C. S. Ogilvie, assistant engineer, Belleville Division, Grand Trunk Railway. Headquarters, Belleville, Ont.

J. E. Osmer, superintendent of motive power and machinery and master car builder, Ann Arbor Railroad and Steamship Lines. Headquarters at Owosso, Mich.

A. P. Prendergast, superintendent of motive power, Baltimore & Ohio. Headquarters, Baltimore, Md.

R. Q. Prendergast, master mechanic, Cincinnati, Hamilton and Dayton. Headquarters, Indianapolis, Ind.

H. W. Ridgway, superintendent of motive power and car department, Colorado & Southern. Headquarters, Denver, Colo.

G. Sanders, superintendent of bridges and buildings, Grand Trunk. Headquarters, Battle Creek.

O. H. Sessions, assistant engineer, Chicago Division, Grand Trunk. Headquarters, Battle Creek.

F. Tranzow, supervisor of track, Grand Trunk. Headquarters, Durand, Mich.

H. R. Warnock, master mechanic, Monongahela R. R. Headquarters, Brownsville, Pa.

C. L. Whiting, in charge of track laying on new branch C. M. & St. P. Ry.

R. E. Woods, road foreman of equipment, Colorado Division, Rock Island.

Operation.

C. N. Akers, superintendent, Norfolk Southern. Headquarters, New Berne, N. C.

C. G. Arthur, superintendent, Southern Railway. Headquarters, Charleston, S. C.

H. S. Badgett, assistant superintendent, Orange & Northwestern. Headquarters, DeQuincy, La.

C. L. Bardo, general manager, New York, New Haven & Hartford Railroad Company. Headquarters, New Haven, Conn.

J. A. Barker, trainmaster, Chesapeake & Ohio. Headquarters, Boston, Ind.

E. W. Batchelder, assistant general manager, Erie Lines west of Buffalo and Salamanca. Headquarters, Cleveland, Ohio.

G. Beckingham, superintendent of track, eastern lines, Grand Trunk Railway. Headquarters, Montreal, Que.

John Benzies, superintendent of locomotive operation, Chicago Terminal and Illinois Divisions, Chicago, Rock Island & Pacific Railway. Headquarters, Chicago, Ill.

E. C. Blundell, superintendent of Nebraska Division, Chicago, Milwaukee & St. Paul. Headquarters, Omaha, Neb.

Miles Bronson, manager, Grand Central Terminal. Headquarters, New York.

A. E. Brown, trainmaster, Southern Pacific. Headquarters, Roseville, Cal.

S. F. Burkhead, superintendent, I. & G. N. Railroad. Headquarters, Fort Worth.

J. P. Burrus, superintendent, Gulf Division, International & Great Northern Railway. Headquarters, Palestine, Texas.

J. Caldwell, superintendent, Detroit Division, Grand Trunk and P. O. & N. Railway. Headquarters, Detroit, Mich.

C. B. Carpenter, inspector of transportation, Denver and Rio Grande. Headquarters, Denver, Colo.

C. E. Cate, assistant superintendent Sonora Division, National Railways of Mexico. Headquarters, Empalme, Sonora, Mex.

S. A. Cherry, superintendent, Tennessee Central R. R. Headquarters, Nahville.

Joseph Chidley, assistant superintendent of motive power, Lake Shore & Michigan Southern, the Dunkirk, Allegheny Valley & Pittsburgh, the Chicago, Indiana & Southern, and the Indiana Harbor Belt. Headquarters, Cleveland.

O. F. Clark, superintendent of transportation, Western Lines, Grand Trunk and P. O. & N. Railway.

J. J. Connolly, superintendent, Montreal Division Grand Trunk. Headquarters, Montreal, Que.

Frank M. Conner, trainmaster, Cincinnati, Hamilton & Dayton Railway. Headquarters, Indianapolis, Ind.

W. A. Cooper, manager, sleeping, dining and parlor cars and news service, Canadian Pacific. Headquarters, Montreal, Que.

W. E. Costello, superintendent, First Division, Houston and Texas Central. Headquarters, Ennis, Texas.

H. F. Coyle, superintendent Belleville Division, Grand Trunk. Headquarters, Belleville, Ont.

T. Cushing, trainmaster, Third District, Grand Trunk. Headquarters, Richmond, Que.

W. D. Danley, superintendent of transportation, Chicago, Peoria & St. Louis Line. Headquarters, Springfield, Ill.

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James E. Davenport, assistant general passenger agent. Missouri Pacific-Iron Mountain Lines. Headquarters, St. Louis.

W. R. Davison, superintendent Ontario Division, Grand Trunk. Headquarters, London, Ontario.

A. T. Dice, Jr., asistant supervisor, The Reading. Headquarters, Reading, Pa.

S. K. Dickerson, assistant superintendent motive power, Big Four. Headquarters, Indianapolis.

E. A. Dollitt, acting superintendent, Detroit Division, Wabash.

J. Ehrke, superintendent Chicago Division, Grand Trunk Railway System. Headquarters, Battle Creek, Mich.

J. O. Ely, roadmaster, Lexington & Eastern Division, Louisville & Nashville Railroad. Headquarters, Knoxville, Tenn.

C. I. Evans, trainmaster, Missouri, Kansas & Texas. Headquarters, Parsons, Kansas.

G. W. Feakins, assistant to general manager, E. P. & S. W. Headquarters, Chicago.

E. E. Finley, superintendent of maintenance of way, San Antonio & Aransas Pass. Headquarters, Yoakum, Texas.

V. B. Fisher, trainmaster, The Reading. Headquarters, Tamaqua.

J. R. Fitzgerald, trainmaster. Third and Fourth Districts, Central Vermont. Headquarters, St. Albans, Vt.

W. B. Foster, general superintendent, Puget Sound Lines, Chicago, Milwaukee & St. Paul. Headquarters, Seattle.

D. S. Fraser, assistant superintendent Manitoba Division, Canadian Pacific. Headquarters, Winnipeg, Man.

H. G. Ganson, assistant general superintendent western lines, Canadian Pacific. Headquarters, Vancouver, B. C.

J. S. Gaylor, yardmaster, Kansas City Southern. Headquarters, Texarkana.

J. T. Gillick, assistant to general manager, Chicago, Milwaukee & St. Paul. Headquarters, Chicago, Ill.

J. W. Griffey, trainmaster, Third District, Western Maryland. Headquarters, Elkins, W. Va.

J. T. Haralson, an assistant superintendent, Sonora Division, Southern Pacific R. R. of Mexico. Headquarters, Em Palme, Son., Mex.

J. H. Hargraves, yardmaster, cotton belt. Headquarters, Gatesville.

L. Harold, superintendent of transportation, Eastern Lines, Grand Trunk. Headquarters, Montreal, Que.

E. S. Heyser, superintendent, San Benito & Rio Grande Railway. Headquarters, San Benito, Texas.

Edward W. Hoffman, superintendent of transportation, Baltimore & Ohio. Headquarters, Baltimore, Md.

W. J. Hogan, trainmaster, P. O. & N. Railway and District 29 (exclusive of Detroit and Port Huron terminals). Headquarters, Pontiac.

J. H. Johnson, superintendent of bridges and buildings, eastern lines, Grand Trunk Railway. Headquarters, Montreal, Que.

R. M. Johnson, inspector of transportation, Western Maryland. Headquarters, Baltimore, Md.

N. W. Jones, inspector of transportation, Philadelphia and Reading. Headquarters, Reading, Pa.

John F. Keefe, superintendent, Northern Division, Central Vermont. Headquarters, St. Albans, Vt.

E. L. Kemp, superintendent, Illinois Central Railroad. Headquarters, Chicago, Ill.

A. F. Kint, trainmaster, Detroit Division, Wabash. Headquarters, Montpelier, Ohio.

W. J. Little, trainmaster, Twelfth District, Grand Trunk. Headquarters, Allandale.

B. M. Loser, assistant superintendent, Third Division, Denver & Rio Grande Railroad.

Frank M. Lucore, assistant general manager, Sunset-Central Lines of the Southern Pacific Company in charge of distribution of equipment. Headquarters, Houston, Texas.

C. Ludulph, assistant to general superintendent, Texas and Pacific Railway. Headquarters, Dallas.

M. J. McCarthy, superintendent of motive power, Baltimore & Ohio Southwestern and Cincinnati, Hamilton & Dayton. Headquarters, Cincinnati, Ohio.

John Joseph McCullough, division superintendent, Northern Pacific. Headquarters, Seattle, Wash.

A. C. McDaniel, superintendent, Detroit, Bay City & Alpena. Headquarters, Bay City.

J. McGraw, acting superintendent, Southern Division, Central Vermont. Headquarters, New London, Conn.

Benjamin McKeen, general manager, Pennsylvania Lines West of Pittsburgh. Headquarters, Pittsburgh, Pa.

J. H. McNeill, second assistant superintendent, Canadian Pacific, Alberta Division. Headquarters, Calgary, Alta.

H. F. Mathews, general superintendent, western lines, Canadian Pacific. Headquarters, Winnipeg, Man.

H. W. Matthews, passenger trainmaster, Western Lines, Grand Trunk and P. O. & N. Railway. Headquarters, Durand.

Henry B. May, chief clerk to general superintendent, M. K. & T. Railway. Headquarters, Dallas.

H. J. Micksch, assistant superintendent, Texas and New Orleans and Galveston, Harrisburg & San Antonio. Headquarters, Jacksonville, Fla.

W. E. Midkoff, roadmaster, Washington Division, Southern Railway. Headquarters, Greensboro, N. C.

S. B. Moore, trainmaster, Missouri, Kansas & Texas of Texas. Headquarters, Waco, Texas.

J. W. Morrow, trainmaster, Coke & Coal. Headquarters, Gassaway, W. Va.

H. F. Needham, assistant superintendent, Union Pacific Railroad. Headquarters, Denver.

J. E. Nusz, chief despatcher, Texas & Pacific. Headquarters, New Orleans.

W. D. Peddicord, trainmaster, Western Maryland. Headquarters, Elkins, W. Va.

J. H. Pelch, superintendent of car service, New Orleans, Texas & Mexico and the St. Louis, Brownsville & Mexico. Headquarters, Houston, Texas.

F. W. Phelan, general yardmaster, Wabash. Headquarters, Moberly.

W. I. Piggott, trainmaster, Eleventh and Fourteenth Districts, including Allandale yard, Grand Trunk. Headquarters, Allandale.

B. R. Pollock, general manager, transportation department, Boston & Maine. Headquarters, Boston, Mass.

W. H. Power, second assistant superintendent,

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Glen Yards, Canadian Pacific. Headquarters, Montreal, Que.

W. H. Pratt, assistant superintendent, British Columbia Division, Canadian Pacific. Headquarters, Vancouver, B. C.

Thomas Quigley, roadmaster, Minnesota Division, Illinois Central. Headquarters, Dubuque.

D. C. Robbins, chief despatcher, the Katy. Headquarters, Waco, Texas.

S. S. Russell, general superintendent of transportation, Central Vermont. Headquarters, St. Albans, Vt.

A. Rutledge, general superintendent eastern lines, Canadian Pacific. Headquarters, Montreal, Que.

C. S. Ruttle, general superintendent, Detroit, Bay City & Alpena. Headquarters, Bay City, Mich.

Mott Sawyer, superintendent, Columbia Division, Chicago, Milwaukee & St. Paul Ry. Headquarters, Malden, Wash.

R. W. Scott, superintendent, Montreal terminals, Grand Trunk. Headquarters, Montreal, Que.

H. W. Shank, trainmaster, in charge of terminal operation, Western Maryland. Headquarters, Cumberland, Md.

J. A. Shepherd, superintendent, Kansas City Terminals of Missouri Pacific. Headquarters, Kansas City, Mo.

G. E. Simpson, general supervisor of transportation, Chicago, Milwaukee & St. Paul. Headquarters. Chicago, Ill.

A. Bayard Smith, assistant superintendent, Canadian Pacific. Headquarters, Toronto, Ont.

J. A. Somerville, superintendent of transportation, Missouri Pacific-Iron Mountain Railway.

L. B. T. Southwick, assistant supervisor, The Reading. Headquarters, Tamaqua.

G. A. Stokes, superintendent, Toronto terminals, Grand Trunk.

F. A. Tingley, superintendent, British Columbia Division, Canadian Pacific. Headquarters, Vancouver, B. C.

S. L. Trusler, passenger trainmaster, Ontario Lines, Grand Trunk. Headquarters, Toronto, Can.

Lester W. Tucker, general manager, Brinson Railway. Headquarters, Savannah, Ga.

J. W. Walters, trainmaster and roadmaster, St. Louis, Brownsville & Mexico Ry.

J. R. Welch, superintendent, Minnesota & Iowa Division, Chicago, St. Paul, Minneapolis & Omaha. Headquarters, St. James, Minn.

G. L. Whipple, superintendent of transportation, Chicago, Milwaukee & St. Paul. Headquarters, Chicago, Ill.

C. S. Wilkins, superintendent, Coke & Coal. Headquarters, Gassaway, W. Va.

J. M. Willard, assistant superintendent, Manitoba Division, Canadian Pacific. Headquarters, Winnipeg, Man.

Garret H. Wilson, superintendent, Grand Central Terminal, also electric division, New York Central & Hudson River. Headquarters, New York.

William Scott Wilson, superintendent of transportation, Ontario Lines, Grand Trunk. Headquarters, Toronto, Ont.

S. M. Woodward, superintendent. Manufacturers' Railway. Headquarters, St. Louis, Mo.

M. M. Worthington, first city manager, Atlantic Coast Line Railroad. Headquarters, Sumter, S. C.

Traffic.

E. A. Ackley, freight soliciting agent, Southern Railroad. Headquarters, Savannah, Ga.

George K. Andrews, commissioner of agriculture, Missouri Pacific proper. Headquarters, St. Louis.

F. W. Angler, freight agent, Union Pacific Railroad. Headquarters, San Jose, Cal.

Duval Armstrong, agent, Frisco Refrigerator Line. Headquarters, New Orleans.

Leo Arrilliga, contracting freight agent, Santa Fe.

C. W. Austin, agent, the Erie. Headquarters, Produce Exchange, New York.

O. P. Bartlett, general agent, Southern Pacific. Headquarters, Atlanta, Ga.

J. F. Barron, general agent of freight department, Union Pacific Railroad. Headquarters, Chicago, Ill.

John J. Barron, agent, Lehigh Valley Railroad. Headquarters, Flemingville, N. Y.

J. F. Barton, general agent, freight department, Union Pacific Railroad.

R. R. Beegle, assistant milk freight agent, Erie Railroad. Headquarters, Buffalo, N. Y.

L. K. Bemis, traveling freight and passenger agent, Illinois Central.

C. E. Benjamin, general passenger agent, Pacific Steamship Service of Canadian Pacific Railway. Headquarters, Montreal, Can.

W. B. Blaine, claim agent, Missouri, Kansas and Texas. Headquarters, Oklahoma City, Okla.

H. V. Blaisdell, agent, passenger department, Union Pacific. Headquarters, Oakland, Cal.

John M. Boak, traveling freight agent, Intercolonial Railway. Headquarters, Chicago, Ill.

A. L. Bongartz, agent, Merchants' and Miners' Transportation Company. Headquarters, Philadelphia.

S. F. Booth, general agent, Union Pacific. Headquarters, San Francisco, Cal.

S. F. Bovick, general agent, Union Pacific Railroad. Headquarters, San Francisco, Cal.

R. M. Brander, division freight agent, Virginia general division. Chesapeake & Ohio. Headquarters, Richmond, Va.

S. S. Bridges, assistant general freight agent, Norfolk & Western. Headquarters, Roanoke, Va.

F. T. Brooks, district freight and passenger agent, Southern Pacific. Headquarters, Buffalo, New York.

A. E. Brown, general agent, Colorado Midland. Headquarters, Pittsburgh, Pa.

D. E. Brown, ticket agent, Union Pacific Railroad. Headquarters, Vancouver, B. C.

Dudley W. Burchard, general agent Hamburg-American Line. Headquarters, Tacoma and Seattle.

J. I. Campbell, commercial agent, Chicago Milwaukee & St. Paul. Headquarters, St. Louis, Mo.

William Carruthers, district freight and passenger agent. Oregon-Washington Railroad & Navigation Company. Headquarters, Tacoma, Wash.

H. F. Carter, district passenger agent, Union Pacific Railroad. Headquarters, Minneapolis, Minn.

W. C. Cartlidge, claim agent, Rock Island Road. Headquarters, St. Louis.

R. M. Case, assistant general passenger agent,

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Lake Shore & Michigan Southern and Dunkirk, Allegheny Valley & Pittsburgh. Headquarters, Cleveland, Ohio.

W. M. Coble, soliciting agent, Macon, Dublin & Savannah. Headquarters, Jacksonville, Fla.

D. M. Collins, district freight agent, Union Pacific Railroad. Headquarters, Minneapolis, Minn.

J. J. Collister, traffic manager, Hannibal Connecting Railroad.

W. H. Connor, general agent, Union Pacific. Headquarters, Cincinnati and Cleveland.

J. E. Corfield, general agent, Union Pacific. Headquarters, Pittsburgh, Pa.

J. B. Courtright, traveling freight and passenger agent, Union Pacific. Headquarters, Vancouver, B. C.

Chas. A. Creitz, freight and passenger agent, Colorado Midland. Headquarters, Chicago, Ill.

Perry Crippen, chief clerk, office general freight agent, T. & O. C. and the Zanesville & Western.

T. J. Cumming, commercial agent, Georgia, Southern & Florida Railway. Headquarters, Valdosta, Ga.

R. Cushman, district freight agent, Canadian Pacific. Headquarters, Saskatoon, Sask.

James Edgar Davenport, assistant general passenger agent, Missouri Pacific and St. Louis, Iron Mountain & Southern. Headquarters, St. Louis, Mo.

Charles Davies, traveling immigration agent, Georgia, Southern & Florida Railway. Headquarters, Jacksonville, Fla.

C. B. Davis, traveling freight agent, Frisco.

L. L. Davis, commercial agent, Union Pacific Railroad. Headquarters, Milwaukee, Wis.

C. C. Dearhart, Jr., traveling freight agent, C. & O. Headquarters, Richmond, Va.

J. N. DeCamara, commercial agent, International & Great Northern. Headquarters, Laredo, Texas.

F. D. DeFriest, general eastern agent, Union Pacific Railroad. Headquarters, New York City.

I. W. Dudley, commercial agent, Toledo, St. Louis & Western. Headquarters, Seattle, Wash.

B. H. Dunn, contracting freight agent, Southern Pacific. Headquarters, Kansas City.

A. J. Dutcher, general agent, Union Pacific. Headquarters, St. Louis, Mo.

Gordon Edwards, traveling freight agent, Delaware and Hudson. Headquarters, Pittsburgh, Pa.

Edward Emery, traveling agent, passenger department, Baltimore & Ohio Railroad. Headquarters, Baltimore, Md.

M. M. Emmert, market agent, Southern Railway. Headquarters, Washington, D. C.

C. M. Evans, general agent, Southern Pacific. Headquarters, Cincinnati, Ohio.

G. W. Feakins, assistant to general traffic manager, El Paso & Southwestern System and Morenci Southern Railway. Headquarters, Chicago, Ill.

J. C. Ferguson, general agent, Union Pacific. Headquarters, Detroit.

N. J. Ferguson, general freight and passenger agent, Quebec, Montreal & Southern. Headquarters, Montreal.

F. W. Feurot, horticultural agent, the Frisco. Headquarters, St. Louis.

W. H. Fletcher, lake freight agent, Lehigh Valley. Headquarters, Scott Street, Buffalo, N. Y.

P. J. Fretz, agent, Lehigh Valley. Headquarters, Suspension Bridge, Buffalo, N. Y.

R. L. Gainer, traveling freight agent, Queen & Crescent Route. Headquarters, Indianapolis, Ind.

M. E. Gault, claim adjuster, Rock Island Road. Headquarters, Little Rock, Ark.

Earl Z. Giblon, traveling agent, Southern Pacific. Headquarters, Cincinnati.

James J. Glasford, agent, Lehigh Valley Railroad. Headquarters, Richford, N. Y.

J. H. Glynn, New England Agent, Southern Pacific.

Theo. F. Gnevo, soliciting freight agent, Queen & Crescent Route. Headquarters, Chicago.

J. O. Goodsell, city passenger agent, Union Pacific Line. Headquarters, Chicago.

H. R. Grier, general agent Las Vegas & Tonopah. Headquarters, Goldfield.

C. M. Haines, traveling immigration agent, Gould Lines. Headquarters, Fort Worth, Texas.

J. W. Haley, commercial agent, Frisco. Headquarters, New Orleans.

A. D. Hart, city passenger agent, Union Pacific. Headquarters, Buffalo.

George E. Herring, district passenger agent, Louisville & Nashville. Headquarters, Cleveland.

G. G. Herring, general agent, Southern Pacific. Headquarters, Pittsburgh, Pa.

R. B. Herrington, traveling freight agent, Traders' Despatch Fast Freight Line. Headquarters, St. Louis.

J. C. Hext, traveling freight agent, Southern Railway. Headquarters, Nashville, Tenn.

Charles I. Hickman, lake freight agent, Lehigh Valley. Headquarters, Tifft Farm, Buffalo, N. Y.

George B. Hill, general agent, Southern Pacific. Headquarters, St. Louis.

J. H. Hogg, live stock agent, Toledo, St. Louis & Western. Headquarters, East St. Louis, Ill.

C. O. Hull, agent, Rock Island. Headquarters, Deshler, Neb.

E. F. Hundley, commercial agent, Frisco. Headquarters, Dallas.

T. L. Jennings, commercial agent, Chesapeake & Ohio and the Chesapeake & Ohio of Indiana. Headquarters, Birmingham, Ala.

W. B. Johnson, district freight and passenger agent, Southern Pacific. Headquarters, Baltimore, Md.

E. L. Jones, commercial agent, Minneapolis & St. Louis Line.

Fritz Kirschoff, general agent, Hamburg-American Line. Headquarters, Portland.

W. R. Kneiss, traveling freight and passenger agent, Delaware, Lackawanna & Western. Headquarters, San Francisco.

V. E. Labbe, traveling passenger agent, Illinois Central in Texas. Headquarters, Dallas.

Charles J. Laney, traffic manager, Cleveland, Southwestern & Columbus. Headquarters, Cleveland, Ohio.

F. H. Law, assistant general freight agent, Illinois Central Railroad. Headquarters, St. Louis, Mo.

G. N. Lawson, commercial agent, Southern Railroad. Headquarters, Winston-Salem, N. C.

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Emerson Lewis, commercial agent, Southern Railway. Headquarters, Washington, D. C.

W. M. Lewis, traveling passenger agent, Grand Trunk Railway. Headquarters, Sheidley Bldg., Kansas City, Mo.

W. O. Lewis, traveling freight agent, Frisco Lines. Headquarters, Memphis.

Lyon Liston, traveling agent, Southern Pacific. Headquarters, Cincinnati.

A. G. Little, general agent, Southern Pacific. Headquarters, Kansas City, Mo.

Frank B. Lyson, ticket agent, Lehigh Valley Railroad. Headquarters, Newark, N. J.

William K. McAllister, general agent, Southern Pacific. Headquarters, Denver, Colo.

Robert McDowell, soliciting freight agent, the Frisco. Cincinnati Territory.

J. S. McKinnon, traveling freight agent, Baltimore & Ohio. Headquarters, Atlanta, Ga.

C. N. McNulty, freight soliciting agent of Southern Railway. Headquarters, 299 Broadway, New York City.

A. E. MacDonald, general claim agent, Canadian Northern Railway also for the Duluth, Winnipeg & Pacific Ry.

E. A. Macon, general agent, Southern Pacific. Headquarters, Detroit, Mich.

Willard Massey, New England freight and passenger agent. Union Pacific Railroad. Headquarters, Boston, Mass.

T. J. May, claim adjuster, St. Louis Division, Rock Island. Headquarters, Eldon, Mo.

S. C. Milbourne, general agent, Union Pacific. Headquarters, Philadelphia.

R. D. Miller, commercial agent, Southern Railroad. Headquarters, Anniston, Ala.

H. O. Mills, commercial agent, T. & O. C. and Zanesville and Western. Office at Columbus, Ohio.

A. M. Mortensen, traffic director, Panama-Pacific International Exposition.

J. H. Mueller, rate clerk, Southern Pacific. Headquarters, Kansas City.

W. G. Neimyer, general agent, Southern Pacific. Headquarters, Chicago, Ill.

Gay W. Norman, traveling passenger agent, Grand Trunk Railway. Headquarters, Merchants' Loan & Trust Bldg., Chicago, Ill.

L. H. Nutting, general Eastern passenger agent, Southern Pacific. Headquarters, New York.

M. L. O'Leary, joint ticket agent, Cotton Belt, I. & G. N., H. & T. C., G., & S. F., S. A. & A. P. Headquarters, Waco, Texas.

B. F. Owsley, agent, Union Pacific Railroad. Headquarters, Port Townsend, Wash.

M. H. Park, agent, Lehigh Valley Railroad. Headquarters, Groton, N. Y.

Willard C. Pearson, agent, Lehigh Valley Railroad. Headquarters, Truxton, N. Y.

J. C. Percival, agent, Union Pacific Railroad. Headquarters, Olympia, Wash.

L. B. Powers, agent, Lehigh Valley Railroad. Headquarters, Ricketts, Pa.

Martin Quinn, special agent, Y. & M. V. Headquarters, Vicksburg, Miss.

H. W. Regal, soliciting freight agent, Edenborn Line. Headquarters, New Orleans.

J. P. Rochelle, traveling freight agent, Missouri, Oklahoma and Gulf. Headquarters, Dallas, Texas.

W. J. Roehl, industrial agent, Frisco Lines. Headquarters, St. Louis.

F. L. Scott, agent, Lehigh Valley Railroad. Headquarters, Lopez, Pa.

H. G. Selby, general agent, Bellingham & Northern. Headquarters, Bellingham, Wash.

J. H. Settles, district passenger agent, Louisville & Nashville. Headquarters, Birmingham.

E. A. Sheve, general agent, Union Pacific Railroad. Headquarters, Butte, Mont.

C. V. Shinkle, contracting freight agent, Union Pacific. Headquarters, Buffalo.

C. B. Sipes, traveling freight agent, Baltimore & Ohio. Headquarters, Columbus, Ohio.

F. S. Sleight, commercial agent, Missouri, Oklahoma & Gulf. Headquarters, Houston, Texas.

J. F. Slowey, commercial agent, Georgia Southern & Florida. Headquarters, Chattanooga.

R. P. Smallhorn, freight agent, Grand Trunk Railway. Headquarters, Montreal, Que.

R. J. Smith, district freight and passenger agent, Southern Pacific. Headquarters, Philadelphia, Pa.

L. J. Speck, passenger agent, Western Pacific. Headquarters, Palace Hote, San Francisco.

A. V. Stevenson, agent freight department, Union Pacific. Headquarters, Oakland, Cal.

W. F. Stevenson, general agent, freight department, Canadian Pacific. Headquarters, Cleveland.

A. T. Stewart, assistant to general traffic manager, Missouri Pacific. Headquarters, St. Louis, Mo.

W. W. Stine, chief rate clerk, Frisco. Headquarters, New Orleans.

R. S. Stubbs, general eastern freight agent, Southern Pacific. Headquarters, New York.

J. A. Sullivan, division freight agent, the Wabash. Headquarters, Detroit.

R. B. Tansel, soliciting freight agent, St. J. & G. I. for Kansas City. Headquarters, St. Joseph.

E. F. Tillman, general live stock agent, Frisco Lines. Headquarters, Ft. Worth, Texas.

T. M. True, general freight and passenger agent, Apalachicola Northern. Headquarters, Port St. Jos, Fla.

L. M. Tudor, commercial agent, Union Pacific Railroad. Headquarters, Pueblo, Colo.

J. W. Tuttle, traveling passenger agent, Union Pacific Railroad. Headquarters, Des Moines, Iowa.

George W. Vaux, general passenger agent, Union Pacific Railroad. Headquarters, Chicago, Ill.

James Warrack, district freight and passenger agent, Union Pacific Railroad. Sacramento, Cal.

H. W. Watson, soliciting agent, Southern Railway. Headquarters, Nashville, Tenn.

Harry E. Webster, traveling coal freight agent, Baltimore and Ohio. Headquarters, Uniontown, Pa.

Homer Wells, claim adjuster, Rock Island Road. Headquarters, Des Moines.

W. B. Wells, industrial agent, Frisco. Headquarters, St. Louis.

James Werrick, district freight and passenger agent, Union Pacific. Headquarters, Sacramento, Cal.

J. A. Wesson, general passenger agent, Ga. So. W. & Gulf. Headquarters, Albany, Ga.

F. N. Westerman, chief clerk, passenger traffic department, Southern Railway. Headquarters, Washington, D. C.

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Vance H. Williams, traveling freight agent, Intercolonial Railway of Canada. Headquarters, Chicago, Ill.

H. O. Wilson, general agent, Union Pacific. Headquarters, Los Angeles, Cal.

George S. Wood, commissioner of development, Midland Continental Railroad. Headquarters, Chicago, Ill.

Purchasing.

J. E. Angel, division storekeeper, Southern Railway. Headquarters, South Richmond, Va.

Joseph Campbell, assistant purchasing agent, New York Central & Hudson River. Headquarters, Grand Central Terminal, New York.

J. M. Chase, chief clerk to general storekeeper of C. G. W. Railroad.

U. K. Hall, general storekeeper, Oregon-Washington Railroad & Navigation Company. Headquarters, Portland, Oregon.

George H. Jenkins, assistant to general purchasing agent, Grand Trunk. Headquarters, Montreal, Que.

F. W. Mahl, director of purchases, Southern Pacific.

F. W. Mahl, director of purchases, Union Pacific Railroad.

H. W. Morris, purchasing agent, Wabash-Pittsburgh Terminal Railway and West Side Belt Railroad. Headquarters, Rook, Pa.

Miscellaneous.

Rufus C. Chamberlain, chief of department of investigation, Canadian Pacific. Headquarters, Montreal, Que.

Dr. C. G. Elmore, sanitary inspector, Chicago and Northwestern Railway.

Devoe P. Hodson, public service commission of New York.

Benjamin T. Payne, general bonus superintendent, Atchison, Topeka & Santa Fe. Headquarters, Topeka, Kansas.

D. M. Saunders, tax and insurance agent, A. B. & A. Headquarters, Atlanta.

RESIGNATIONS.

Executive.

George R. Collett, vice-president, St. Louis National Stock Yards.

Joseph I. Doran, director, Norfolk Terminal Railway.

E. H. Fitzhugh, president and director, Central Vermont.

Arthur Holland, president, Bangor & Aroostook R. R.

L. E. Johnson, president, Norfolk and Western Railway.

F. R. Liggett, secretary to vice-president J. S. Pyeatt, the Frisco.

William Mahl, vice-president and comptroller, Union Pacific.

M. C. Markham, director, Southern Illinois and Missouri Bridge Company.

A. S. May, director, New Haven.

George M. Miller, director, New Haven, Ontario & Western.

J. Mittendorf, vice-president, Canton Railroad.

William Rockefeller, director and member, Executive Committee, Southern Pacific.

R. L. Schoonmaker, receiver, Birmingham & Atlantic.

Legal.

Maxwell Evarts, general counsel, Union Pacific.

Financial.

Joseph Hellen, assistant secretary, Union Pacific.

H. M. Milam, treasurer, Atlanta, Birmingham & Atlantic Railroad.

Accounting.

J. A. Donaldson, statistician, Frisco.

T. O. Edwards, auditor, the "Katy."

A. D. McDonald, auditor, Southern Pacific Railway.

Alexander Millar, clerk and secretary, Southern Pacific Railway.

L. B. Sedgwick, auditor, Liberty-White in charge of accounting and freight claim departments.

C. B. Seger, deputy comptroller, Southern Pacific.

Engineering and Mechanical.

Howell H. Althouse, chief engineer, Erie Railroad Company.

W. W. Colpitts, chief engineer for receivers, Kansas City, Mexico & Orient.

C. B. M. Craig, chief engineer, Midland Continental Railroad.

Charles H. Moore, principal assistant engineer, Erie Railroad.

H. J. Osborne, master mechanic, Louisiana Division, Chicago, Rock Island & Pacific Railway.

Charles Stake, engineer, Pennsylvania Lines.

"Dan" Tuttle, veteran passenger engineer, Chicago & Northwestern.

Operation.

W. E. Brown, superintendent, Missouri, Kansas & Texas.

W. E. Costello, superintendent, Southern Division, Central Vermont.

G. E. Coutant, superintendent of motive power and machinery and master car builder, Ann Arbor Railroad.

C. S. Cunningham, superintendent, Detroit Division, Grand Trunk Railway.

W. H. DeFrance, general superintendent, Louisiana Southern.

J. A. Emmart, assistant general manager, Coal & Coke Ry.

J. H. Hargraves, yardmaster, Kansas City Southern.

Hans Helland, superintendent of maintenance of way, San Antonio & Aransas Pass.

E. S. Heyser, traimaster and roadmaster, St. Louis, Brownsville & Mexico Railway.

W. D. Holliday, general superintendent, Ann Arbor.

A. L. Kuykendall, assistant superintendent, Texas & New Orleans and the Galveston, Harrisburg & San Antonio.

F. W. Mahl, assistant to director of maintenance and operation, Union Pacific.

W. C. Mann, general yardmaster, I. & G. N.

Y. M. Martin, trainmaster, Missouri, Kansas & Texas.

Arthur O'Leary, chief despatcher, the Katy.

Charles W. Pifer, roadmaster, Minnesota Division, Illinois Central.

B. R. Pollock, general manager, New York, New Haven & Hartford Railroad Company.

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T. C. Radley, superintendent, Gulf Division, International and Great Northern Railway.
C. E. Soule, superintendent, Northern Division, Central Vermont.
Virgil Walker, superintendent, Norfolk Southern.
A. R. Whaley, general superintendent of electric division, New York Central & Hudson River.
W. A. Worthington, assistant director of maintenance and operation, Union Pacific.

Traffic.

D. D. Allerton, agent, Erie.
W. S. Basinger, assistant to director of traffic, Union Pacific.
C. N. Bell, claim adjuster, Rock Island Road.
A. H. Bolte, claim agent, Rock Island Road.
M. Corcoran, traveling passenger agent, Grand Trunk, Kansas City territory.
D. M. Cosgrove, agent, Lehigh Valley Railroad.
W. A. Cox, general freight agent, Western Maryland. Headquarters, Pittsburgh, Pa.
G. Craig, division freight agent, Chesapeake & Ohio.
W. G. Crutchfield, commercial agent, the Southern.
M. W. Dunbar, agent, Lehigh Valley Railroad.
A. S. Gary, division freight agent, Virginia Division, Chesapeake & Ohio.
G. Gillespie, joint ticket agent, Cotton Belt, I. & G. N., H. & T. C., G. C. & S. F., S. A. & A. P.
O. R. Hartom, agent, Lehigh Valley Railroad.
J. H. Hodges, general freight and passenger agent, Apalachicola Northern.
Charles N. Laney, traffic manager, Toledo, Bowling Green & Southern.
J. W. McCann, commercial agent, Frisco at New Orleans.
E. McGraw, live stock agent, Toledo, St. Louis & Western.
C. N. McNulty, soliciting freight agent, Georgia, Southern & Florida.
B. P. Miller, commercial agent, Georgia, Southern & Florida.
F. W. Miller, commercial agent, Chesapeake & Ohio and the Chesapeake & Ohio of Indiana.
W. E. Miner, traffic manager, Hannibal Connecting Railroad.
R. E. Phillips, traveling freight agent, Macon, Dublin & Savannah.
F. H. Plaisted, assistant to director of traffic, Union Pacific.
W. H. Post, agent, Lehigh Valley Railroad.
D. I. Roberts, general freight and passenger agent, Quebec, Montreal & Southern.
W. G. Rogers, traveling freight agent, Illinois Central.
W. L. Sarhgent, traveling immigration agent, Gould Lines.
D. M. Saunders, special claim agent, Southern Railway.
H. G. Shelby, commercial agent, Chicago, Milwaukee & Puget Sound.
L. J. Spence, director of traffic, Union Pacific.
L. A. Vanduyne, agent, Lehigh Valley Railroad.
R. E. Watson, traveling freight and passenger agent, Illinois Central.
J. R. Wood, passenger traffic manager, Pennsylvania Railroad.

Purchasing.

E. L. Leitch, chief clerk to general storekeeper, C. G. W. R. R.
J. E. Mahaney, general storekeeper, Oregon-Washington Railroad & Navigation Company.
W. V. S. Thorne, director of purchase, Southern Pacific.

Miscellaneous.

Henry L. Gray, engineer, Public Service Commission, Tacoma.
James W. Whitford, wage bonus supervisor, Santa Fe.

OBITUARY.

Albert S. Cheever.

Albert S. Cheever, former superintendent of the Fitchburg Division of the Boston & Maine Railroad, died suddenly at his home, 6 Aldersey Street, Somerville, this morning. He was born in Chelsea, September 17, 1857.

At an early age, Mr. Cheever entered the employ of the Fitchburg Railroad as an engineer. He was later made road master and was then promoted to chief engineer, which position he held up to the time of the consolidation in 1900.

In 1901 he was made superintendent of the Fitchburg Division of the Boston & Maine, which position he held until a few months ago, when he became assistant to the vice-president of the road.

J. T. Mason Barnes.

J. T. Mason Barnes, who died on January 28th, at his home in Baltimore, Md., was secretary and treasurer of the Western Maryland from 1896 to 1902, and then was assistant secretary and treasurer. On October 16, 1912, he was retired on an annuity.

Stephen S. Palmer.

Stephen S. Palmer, president of the St. Louis & Hannibal, the Green Bay & Western, the Ahnapee & Western, the Kewaunee, Green Bay & Western and the Iola & Northern railways, also a director in various banking, gas, electric, insurance and manufacturing companies, with headquarters at New York, died on January 28th, at Redlands, Cal., at the age of 60.

Joseph W. Gilluly.

Mr. Joseph W. Gilluly, treasurer of the Denver & Rio Grande R. R., died February 6th, at Denver, Colo., of heart failure following an attack of Bright's disease. He was born at Shrewsbury, N. J., in 1851.

Thomas P. Bonfield.

Mr. Thomas Philip Bonfield, president of the Kankakee & Seneca R. R. and a director of the Chicago, Rock Island & Pacific Ry., and the

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Cleveland, Cincinnati, Chicago & St. Louis Ry., and nestor of the Kankakee Bar Association, died January 21st, at Kankakee, Ill., after a lingering illness with bronchitis.

Fred C. Hudson.

Fred C. Hudson, general attorney for the Iron Mountain for the State of Louisiana, with headquarters at Monroe, died at Hot Springs, Ark., on January 17th. Mr. Hudson had been in ill health for over two years. He was general solicitor for the Houston, Central Arkansas and Northern when the road was purchased by the Iron Mountain about twenty-five years ago. He was then made general attorney in Louisiana for the Iron Mountain and continued to hold that position up to the time of his death. He also represented in Louisiana the Gould estate, which holds large land, timber and other interests there.

John Fritz.

John Fritz, the veteran iron and steel master, died in Bethlehem on February 12th. Mr. Fritz was in his 91st year and he had been in ill health for several months. He was a Chester County farmer's son and he began his industrious life when he was very young and at the age of ten or twelve years was doing a man's work in the farm. He drifted into blacksmithing 75 years ago but began the labor of his life at Moore & Hoovens rolling mill in Norristown in the early 40s.

He soon became superintendent, succeeded to the management of the Cambria Iron Company, and in 1860 became connected with the Bethlehem Iron Works, now the Bethlehem Steel Company. Mr. Fritz was the best known iron man in this country and he was honored by our own and foreign mining, civil, electrical and mechanical engineering societies and received several degrees from colleges. He was a trustee of Lehigh University and built the John Fritz Laboratory, and the Fritz Memorial Church to his mother in South Bethlehem.

S. S. Palmer.

S. S. Palmer, president of the Green Bay and Western Railroad Company, died in California on January 30th. He had been in failing health for about a year. J. A. Jordon, vice-president of the road, becomes the nominal head.

Charles A. Beach.

Charles A. Beach, president of the Catskill Mountain Railway, died in Catskill, N. Y., on January 16th. He was seventy years of age, having been born at Catskill in 1843. In 1880 he helped locate the route of the Catskill Mountain Railway. He was superintendent of the line from 1882 until 1885, when he became general superintendent and secretary. A few years ago he became president. For three years before 1880 he was in the steamboat business on the Hudson River and for twelve years he was proprietor of a stage line in the Catskills. He was also secretary and treasurer of the Otis Railway. Mr. Beach is survived by his wife, who was Mabel Wilson.

William G. Raoul.

William Green Raoul died at Atlanta, Ga., on January 17th. During the Civil War he was captain in the Confederate Railway Bureau, in charge of the car construction and transportation of army supplies. In later years at different times Captain Raoul held the presidency of the Central of Georgia, Mexican National, and Atlanta, Birmingham & Atlantic Railroads.

T. W. Roby.

T. W. Roby, comptroller of the Seaboard Air Line Railway, died in Norfolk, Va., on February 7th, following a stroke of apoplexy.

TRAFFIC.

February Movements.—February presents a favorable record of traffic movements throughout the country. While freight was moved promptly and the car situation was in the main, satisfactory, the railroads had all they could comfortably handle. The open winter has proved of the greatest assistance in the prompt movement of freight and in many sections the railroads have experienced less difficulty and congestion than they have for years in spite of the fact that they have in many instances been handling a record tonnage. Not only has the general merchandise movement been in large volume but the continuous movements of grain during the past four or five months has probably been the largest that has ever occurred to a like period and there has been no week during this period when grain receipts at terminal markets have fallen below 20,000,000 bushels while at times they have risen as high as 90,000,000. One of the striking features of the situation is the long haul business being secured by the railroad. There has been somewhat of a general complaint of a shortage of box cars through the leading grain producing States, particularly in Minnesota and the Dakotas but this condition has not reached near the proportions of previous years.

The possible influence of the Panama Canal upon established traffic routes continues to be a question of large interest to railroad officials. That the Southern ports expect to reap a rich harvest after the opening of the canal is evidenced by the great activities looking to terminal improvements which are in evidence at many such ports. At Pensacola, Fla., for example, extensive preparations are being made for increased ocean traffic. One pier 1,225 feet in length has recently been completed and four more are planned for the immediate future, while details for one 2,700 feet long are being worked out. Other cities are showing a like appreciation of the advantages which are likely to be secured by those ports who are prepared for the anticipated increased traffic.

From the Pacific Coast comes reports that a large part of the fruit traffic from California, that has been handled by the trans-continental lines, may go by water to New Orleans for distribution into Missouri River and Mississippi Valley territory. The suggestion is that much of it may be transported in refrigerator ships, but it would appear that, owing to the much

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greater length of time consumed in making the water haul, that the trans-continental lines will retain an advantage hard to overcome so far as the transportation of perishable products are concerned.

The parcel post experiment continues a matter of great interest and is being watched closely by government, railroad and express officials. It is discussed at greater length in another section of this issue. It has so far shown a surprising vitality and from the number of packages carried during the first month, it would appear that it is being utilized to a large and general extent. It remains to be seen that whether, after the public becomes as familiar with its shortcomings as with its advantages, they will still continue to favor it over the express companies' service.

An interesting annual summary of ship building in the United Kingdom and other countries for the year of 1912 issued by Lloyd's Register of British and foreign shipping, shows that during that year a total number of 1,151 vessels were built with a tonnage of 1,506,174 tons. This is considerably in excess of the number and tonnage for 1911. The United Kingdom, as usual leads, representing, in tonnage, considerably more than half of the world's entire activities along these lines. It is reported that the shipping trade continues brisk and that there is no outlook for any immediate let-up.

Tourist Rates.—Summer tourist rates to the West for the coming season, have been placed upon the same basis as last year.

From Chicago to Colorado common points the round trip fare will be $30, and to Utah points the rate for the round trip journey from Chicago will be $43. To California the round trip charge will be $72.50 for tickets on sale every day and $65 for periods during which conventions will be held on the coast.

It is also reported that the Central Passenger Association has decided to inform applicants for low rates to conventions to be held during the present year, that a fare of two cents a mile in each direction will be quoted. This is the rule which has been in force for some time.

Texas Lumber Shipments.—An extraordinary movement of lumber through Texas City and Galveston has been going on during the last few weeks. Reports from Galveston are to the effect that the Mallory and Morgan Lines and Texas City Steamship Company are sending out on every steamer practically all the lumber they can take care of along with their other business. So far this season the Texas City steamship line steamers have carried approximately 17,000,000 feet of lumber to North Atlantic ports, and there is now in sight about 16,000,000 feet. The movement of lumber to Mexico also has been large. Port Bolivar, Sabine and Port Arthur have also been receiving large quantities of lumber for movement to North Atlantic and Mexican ports. Another feature of the year's lumber movement has been shipments to Panama.

Immigrant Traffic.—Figures just compiled by the Immigrant Bureau lines show that during the first eleven months of 1912 a total of $1,062,158 revenue accrued to these lines on the immigrant traffic, compared with $1,030,160 for the preceding year, a gain of 3.11 per cent. The figures for the eleven months of 1911 was 12.04 per cent under 1910, which in turn was 1.44 per cent over 1909. That year, however, showed an increase of 90.13 per cent over 1908.

At the North Atlantic Steamship conference which met in Berlin on January 30th, the Canadian Pacific Railway refused to join in the regulation pool which has been enforced for a number of years. The other members unanimously decided to renew the combination. This action on the part of the Canadian Pacific was foreshadowed by its recent stand in connection with immigrant business and the efforts which it is to put forth to induce a large number of immigrants to settle in the Canadian northwest. It evidently desires no restrictions placed upon its efforts along these lines.

Reduction in Pittsburgh Coal Rates.—A freight rate has been established on coal from the Pittsburgh District that will permit competition on a more even basis with other coal fields in the seaboard coal markets and particularly for the export coal trade. The new charge established jointly by the New York Central and the Western Maryland gives a net rate of $1.43 a gross ton to Baltimore docks, when the consignments of coal ore for points beyond the Baltimore local market. This rate has been enjoyed by the Fairmont, Pocahontas and New River District operators of West Virginia, and represents a reduction of 15 cents a ton for the Pittsburgh District.

LAND AND INDUSTRIAL.

Additional Commissioner of Agriculture for the Missouri Pacific System.—The Missouri Pacific-Iron Mountain has added another commissioner of agriculture to its force. Heretofore, Mr. L. A. Markham, with headquarters at Little Rock, Ark., has been commissioner of agriculture for the system. He will remain commissioner of agriculture for the Iron Mountain Lines and retain his headquarters at Little Rock, but Mr. George K. Andrews has been appointed commissioner of agriculture with supervision over the lines of the Missouri Pacific proper. His headquarters will be in St. Louis.

Mr. Andrews is a man who has made a very thorough study of scientific farming and agriculture for a number of years. His addition to the force of the Missouri Pacific is in keeping with the policy of President B. F. Bush, to help improve agricultural conditions along the tracks of the company by teaching the tillers of the soil scientific methods of farming and conserving moisture.

J. J. Hill to Start Farmers' Bureau.—An agriculture department is to be started in connection with the First National Bank of St. Paul lately taken over by the Hill interests. The department will take the form of a daily information bureau for farmers throughout the entire Northwest, and information will be given on practically all branches of farming. The bureau will be second in size only to that of the United States.

It is still understood that Mr. Hill's plans include lending money to farmers at lower rates than are now being paid.

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Canadian Pacific's Colonization Plans.—J. S. Dennis, assistant to the president, of the Canadian Pacific Railway, has returned from his recent visit to Europe where he was engaged in work the object of which is to obtain new desirable colonists for Canada. During his stay in London, Mr. Dennis addressed the Royal Colonial Institute on the subject of "Land Settlement Within the Empire," and he took advantage of the occasion to give a description of the new policy of the Canadian Pacific Railway under which the company is disposing of the remaining portion of their land grant for colonization purposes solely. This remarkable liberal policy, which is considerably in advance of anything heretofore attempted, attracted widespread and keen attention, being dealt with at great length by the press of the United Kingdom and also by many Continental papers. In the course of his address, Mr. Dennis emphasized the important fact that it is not possible to obtain from the United Kingdom any very large number of agricultural colonists for any of the oversea domains, the reason being that the agricultural population of the United Kingdom is now very limited, less than 13 per cent of the total population, or about 1,000,000 males, or 240,000 families in Great Britain and Ireland being engaged in agriculture and living on the land.

With all the overseas domains actively competing for a share of these colonists the proportion which any one can obtain is necessarily limited. Mr. Dennis utilized these facts as a basis for the argument that if colonization is to progress as steadily in Canada a large portion of the agricultural immigrants must be secured from northern Europe and from the United States.

Mr. Dennis intimated that vigorous efforts were to be made by his road to induce immigration to Canada from the United States. He stated that Canada supplies better prospects of financial success, a lower rate of taxation and as good or better school systems and a respect for law and order, such as is not found anywhere in this country.

Railroads Assisting Farmers in the Middle West.—Bankers and railroads of this section are actively engaged in promoting the adoption of better farming methods. In a number of countries in Missouri and Kansas, bankers are forming organizations for the purpose of establishing county bureaus of agriculture and employing experts to advise farmers in their work. The Rock Island and Santa Fe have agreed to pay four-fifths and the United States Department of Agriculture one-fifth of the salary and expenses of two farm demonstration agents to be stationed in Western Kansas, where there is serious need of a change in the system of farming now practiced.

The Missouri Pacific has established three experimental farms in Arkansas and two in Louisiana, and will start a sixth soon in Southern Missouri. A chain of experimental farms may be established along its entire system if those now conducted prove successful. The Rock Island is running more special farm demonstration trains than any other railroad in the Southwest.

Establishing Polish Settlers in the South.—Announcement has been made by the management of the Illinois Central Railroad that a colony of Polish farmers will be established within a year on an old southern estate known as Brandon Hall, located eleven miles east of Natchez, Miss. The property chosen for settlement purposes is located in Adams County, Mississippi, from which, for various reasons, all negroes have left. Four thousand acres have been acquired for the colonization scheme and forty acres will be allotted to each family.

Illinois Central to Establish Twenty-six New Farms.—Twenty-six new experimental farms will be established soon along the lines of the Illinois Central Railroad, President C. H. Markham announces. Fifteen will be located at various points on the Central of Georgia Road, a subsidiary of the Illinois Central, and eleven on the lines of the Illinois Central proper.

These will make a total of 27 farms of this kind on the Illinois Central and thirty on the Central of Georgia. Most of the new farms along the Illinois Central proper will be in Mississippi. Charles M. Brumfield is in charge of the agricultural work of both roads. His headquarters are in Memphis, Tenn.

Assisting the Farmers of Oklahoma.—The railroad companies operating in Oklahoma have been giving a great deal of attention to agricultural educational work. The Missouri, Kansas and Texas, Rock Island, Santa Fe and Frisco, as well as the other lines have with regularity run special trains carrying lecturers through the State in an effort to educate the farmers in proper seed selection and agricultural methods. The preliminary work of this character has obtained very satisfactory results.

LABOR.

Firemen's Wage Controversy to be Arbitrated.—The big development of the month, as recorded more fully in another section of this issue, was the agreement reached between the management of the Eastern railways and the representatives of their firemen to arbitrate their differences under the Erdman Act. The railroads were naturally reluctant to employ this method, as it was believed to be wholly inadequate to handle the situation properly, but as the firemen were on the verge of declaring a strike the railway managers decided, under protest, to accept the only Governmental means available, rather than cause the public the extreme inconvenience which would have been occasioned, had the threatened strike become an actuality.

The demands of railway labor for higher wages, shorter hours and better conditions generally, go merrily on and it is daily becoming more apparent that some adequate method of compulsory arbitration must soon be adopted in spite of the recent heroic statement of Samuel Gompers to the effect that laboring men and women would fight before they would submit to such a form of arbitration.

Several wage increases occurred during the month. By an agreement reached through the assistance of Judge Knapp of the Commerce Court and Acting Commissioner of Labor

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Hanger, some two thousand telegraphers of the Southern Railway received a wage advance of approximately eight per cent. The additional wage will amount in the aggregate to more than $100,000 a year. A substantial increase in wages has also been granted blacksmiths, machinists, boiler makers and their helpers by the Delaware and Hudson Railroad Company. About four thousand workers will benefit. The Wabash Railroad has increased the wages of two thousand employees in the shops from six per cent to ten per cent. On the New York, New Haven and Hartford a seven per cent increase in pay affecting fifteen thousand mechanics and shop men has been agreed upon.

The strike on the Lehigh Valley at Packerton, Pa., which began February 8th, because the officials of the Company refused to reinstate one hundred and seventy men who were recently laid off, has apparently proved unsuccessful as the latest reports state that the "back bone" of the strike is broken and that many of the strikers are requesting that their positions be given back to them. It is stated that so far as the Company is concerned, the strike is over and that more men have applied for positions than the Company needs.

According to a statement issued at the office of the Chicago and Alton at Chicago, the management will adhere to its policy in forcing the rule of "eight hours a day and six days a week" in its shops at Bloomington, Ill. Officials of the various Unions, members of which are employed at the Bloomington shop, conferred recently with President Worthington relative to the rule.

The representatives of the unions contended that the working time in the shops should be reduced to eight hours a day and five days a week in order that the full force may have an opportunity to obtain employment. Five hundred men recently were laid off on account of slack business. It is expected that the union officials will submit a report to their respective organizations before further action is taken.

President Worthington says:

"The railroad feels that the agreement with the unions now in effect is liberal and contains every provision within reason that the company can afford to grant or that labor should ask for. When labor unions attempt to usurp the functions of management to the extent of dictating how many men shall be employed at any one time they are asking for something that cannot be granted."

Rock Island Advises Employees to Save.—Employees of the Rock Island Railroad are being urged to invest their savings in real estate. According to a statement issued by the management of the company, no man of ordinary income should neglect to invest a portion of his earnings in land.

"The young man who makes a payment on a piece of property and assumes further payments will not throw his money away foolishly," says the statement. "A liability of that kind teaches a man to save, gives him a standing in the community, awakens civic pride in his bosom and makes him a better citizen.

"More than sixty years ago the relatives of John Hunt, of New York, tried to have him declared insane because he paid $2,400 for a bit of New York real estate. The other day the same piece of property sold for $1,825,000. Real estate in the right location is an ideal investment. It cannot be destroyed, burned, lost or stolen, and it will increase in value more rapidly than money in almost any other form.

"The young man who puts his money into lots instead of squandering every cent on that characteristically American delight known as 'having a good time,' which is the real cause of extravagance, is laying a foundation for success."

United States Steel Corporation Increases Wages.—The United States Steel Corporation has announced a wage advance of 14 2-7 per cent for unskilled laborers and approximately 10 per cent for all skilled laborers. The day laborer getting 17½ cents an hour will be paid 20 cents. In the Carnegie mills 38,000 men are affected.

Increase in United States Steel Pensions.—The trustees of the United States Steel and Carnegie Pension Fund, which went in operation February 1, 1911, has made public its second annual report. It shows total disbursements for 1912 of $358,780, as against $281,457 for 1911.

BOOK REVIEWS.

Rates and Regulation.—By William Z. Ripley, Ph.D., Harvard University. Net, $3.00.

For various reasons, railroads during the last ten years have occupied a peculiarly prominent place in public attention in the United States. Representing an investment of about one-fifth of the nation's wealth, their affairs are a matter of direct concern, through bankers, to thousands of holders of their securities all over the country. Every merchant and manufacturer, in connection with the every day conduct of business, is bound, as a shipper, to be interested in their status. Several million officials and employes are dependent upon railroad welfare for their livelihood. The general public, as consumers, is vitally concerned with the manner in which they are conducted; and now, since the advent of strict public control of rates, in the outcome of that political experiment. The legal profession is directly interested also—by way of the multitude of cases now arising for settlement before the various Federal and State Railroad Commissions. This treatise, more detailed and elaborate than a mere text-book, aims to set forth the nature of the railroad problems of the time commercial, fiscal and political; while at the same time avoiding the extreme technicalities of the narrow specialist. The first volume, now ready, deals with the matter of rates and governmental regulation; while the second, in preparation and nearly ready, deals with matters of finance and corporate organization. Amply provided with footnotes and references, the text, nevertheless, deals with the subject in a manner comprehensible to the ordinary reader. Over forty maps and illustrations in the first volume alone serve to render the problems discussed more interesting and intelligible. It is a work which should appeal alike to bankers, investors, railway officers and employes, lawyers and publicists as well as to all students of economics and politics and the serious general reader.

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Synopsis of the Sixty-Sixth Annual Report of the Pennsylvania Railroad Company.

THE PENNSYLVANIA RAILROAD COMPANY.

GENERAL OFFICE, BROAD STREET STATION, PHILADELPHIA, February 28th, 1913.

The Board of Directors submit herewith to the Stockholders of The Pennsylvania Railroad Company a synopsis of their Annual Report for the year 1912:-

Rail operations—Revenues		$174,607,598.22
Rail operations—Expenses		126,637,944.59
Net revenue—Rail operations		$47,969,653.63
Auxiliary operations—deficit		1,147,985.23
Net Railway operating revenue		$46,821,668.40
Railway tax accruals		7,128,535.02
Railway operating income		$39,693,133.38
Other income:		
Income from securities	$14,527,491.56	
Hire of equipment, etc.	4,762,241.75	19,289,733.31
Gross income		$58,982,866.69
Deductions from gross income		16,828,902.66
Net income		$42,153,964.03
Disposition of net income:		
Appropriations to sinking and other reserve funds	$1,138,627.92	
Portion of principal of equipment trust obligations	2,901,727.99	
Cash dividends	27,198,918.00	
Appropriations for Additions and Betterments	8,365,479.53	
Construction expenditures on branch roads	888,107.06	$40,492,860.50
Balance transferred to credit of Profit and Loss		$1,661,103.53

CONDENSED GENERAL BALANCE SHEET.

DECEMBER 31st, 1912.

ASSETS.		
Property investment:		
Road	$282,948,637.64	
Equipment	154,130,678.53	
	$437,079,316.17	
Reserve for accrued depreciation—*Cr.*	14,086,588.29	$422,992,727.88
Securities owned		331,909,154.32
Securities under lease of U. N. J. R. R. & C. Co		2,559,658.25
Miscellaneous investments		1,929,509.60
Cash		30,207,397.25
Materials and supplies		15,434,219.43
Cash and securities in sinking, insurance and other reserve funds		34,686,149.81
Cash and securities in Provident Funds		6,616,863.23
Other assets		39,843,342.50
		$886,179,022.27
LIABILITIES.		
Capital Stock		$453,877,950.00
Premium realized on Capital Stock from January 1st, 1909		7,050,200.00
Funded Debt of The Pennsylvania Railroad Company		152,468,940.00
Funded Debt of Companies whose properties have been acquired by The Pennsylvania Railroad Company		54,334,500.00
Guaranteed Stock Trust Certificates, Philadelphia, Wilmington and Baltimore Railroad and New York, Philadelphia and Norfolk Railroad Companies		14,708,250.00
Equipment Trust Obligations		21,888,827.71
Mortgages and Ground Rents Payable		3,456,622.36
Securities received with the lease of the U. N. J. R. R. & C. Co		2,559,658.25
Liability on account of Provident Funds		6,616,863.23
Other Liabilities		44,049,668.57
Additions to property since June 30th, 1907, through income		52,439,756.37
Reserves from Income or Surplus:		
Invested in Sinking, Redemption and other reserve funds		35,745,431.46
Reserve for Additions and Betterments and Car Trust Principal charged out in advance		8,447,378.70
Profit and Loss		28,534,975.62
		$886,179,022.27

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Synopsis of the Sixty-Sixth Annual Report of the Pennsylvania Railroad Company.—Continued.

The number of tons of freight moved on the five general divisions east of Pittsburgh and Erie in 1912 was 143,480,431, an increase of 18,305,363, or 14.62 per cent.; the number of passengers was 72,452,887, an increase of 5,007,173, or 7.42 per cent.

The Railroad Companies east of Pittsburgh and Erie in which your Company is interested show satisfactory results. Detailed statements of their operations will be found in their respective annual reports, as well as in the full report of your Company.

The number of tons of freight moved on the lines west of Pittsburgh was 165,449,782, an increase of 26,672,392. The number of passengers carried was 34,326,381, a decrease of 335,069.

The operating revenue of all lines east and west of Pittsburgh for the year 1912 was $374,096,179.92; operating expenses, $291,867,378.81, and operating income, $82,228,801.11, an increase in operating revenue, compared with 1911, of $37,612,367.16, and an increase in operating income of $7,039,773,63. There were 473,174,093 tons of freight moved on the entire system, being an increase of 59,955,772 tons, and 178,811,733 passengers carried, an increase of 9,816,577.

There were expended during the past year for construction, equipment, and real estate on the Lines West of Pittsburgh $16,236,642.13.

The expenditures were principally for new ore docks at Cleveland, the elevation of tracks in that city, and also in Chicago and Fort Wayne, the construction of additional main tracks on the Pittsburgh, Fort Wayne and Chicago Railway, the Cleveland and Pittsburgh Railroad and the Pittsburgh, Cincinnati, Chicago and St. Louis Railway, land for new freight station at Indianapolis, increase in yard and station facilities at various points, and for additions to and improvement of the equipment.

GENERAL REMARKS.

The Income Statement is in the form prescribed by the Interstate Commerce Commission, effective July 1st, 1912, which requires the statement of certain parts of the Income Statement in greater detail; as well as showing the receipts and disbursements of certain accounts. The Company is further required to include the Income derived by Sinking and other Reserve Funds as part of its Income; but as it is not permitted to charge as a payment interest on any part of its bonds which may be held in any of the Sinking or Trust Funds, such interest on bonds so held cannot be included in said Income. While these accounting changes result, therefore, in apparently swelling the Net Income of the Company to the extent of $786,230.60 yet it is offset by corresponding necessary appropriations to these funds out of net income, which appropriations were formerly included in fixed charges.

This Statement shows that the total Rail Operating Revenues were $174,607,598.22, the largest in the history of the Company, an increase of $17,120,185.52, or 10.87% as compared with 1911.

The increased express traffic resulted in a greater gross return to the Company. The future effect of the parcel post on express revenue cannot as yet be determined, nor is it known what effect the change in express rates, ordered by the Interstate Commerce Commission, will have upon the revenue received from the Express Company operating over your lines.

In the transportation of United States Mails the revenues show a decrease although the volume of the traffic increased. The rates are fixed by Congress, and there is a Congressional investigation of the subject at the present time. It is hoped that, after due consideration is given to the value of this service and to the special facilities it requires, remunerative rates will be paid.

Rail Operating Expenses are also the largest in the history of the Company, showing an increase of $13,409,551.56, or 11.84%, caused principally by the increased traffic, which necessitated not only greater outlays for transportation expenses, but also for repairs and renewals of roadbed, bridges, and buildings, signals and interlocking and for other items which add to the safety and comfort of the patrons and employes of the road; as well as for repairs and renewals of equipment, and increased charges for Depreciation.

The expenses were further increased by the severe weather in January and February, 1912, and they also reflect increases caused by higher wages; the operation of the Extra Train Crew Law; increased cost of fuel and other materials, and improved standards of track and other construction to meet the requirements of heavier rolling stock.

In the wage questions that arose during the past year with the Enginemen and Firemen on the railroads in the Eastern District of the United States, represented by their respective Brotherhoods, a general strike was averted in the case of the Engineers by the appointment of a special Board of Arbitration, consisting of seven members, one selected by the railroad companies, one by the Brotherhood of Locomotive Engineers, and the other five appointed by the Chief Justice of the Supreme Court of the United States, the Presiding Judge of the Commerce Court and the United States Commissioner of Labor, collectively.

This Arbitration Board was constituted after attempts had failed to settle the difficulty through mediation under the Erdman Act, and because the parties in the controversy, while agreeing to the principle of arbitration, would not accept arbitration under the provisions of that Act.

In the difficulties of the present year with the Firemen, represented by the Brotherhood of Locomotive Firemen, a strike was averted by the railroad companies agreeing to submit to arbitration under the provisions of the Erdman Act, which they did not believe to be satisfactory, but accepted rather than impose on the Country, the railroads and the employes the lamentable consequences of a general strike, involving over fifty railroads, having over 25% of the mileage and nearly 40% of the total Operating Revenues and Operating Expenses of all the railroads in the United States.

Considering the magnitude of the interests in this Country and those Countries with which it has commercial relations that would be affected by the interruption of railroad traffic, and the serious results that would ensue therefrom; the stoppage of food supplies, fuel and other traffic, the inconvenience, losses and suffering to the general public whose interest is paramount, and to the workers in other industries dependent on a reliable transportation service and in no way responsible for railway disputes, and the failure of strikes to produce any permanent advantages to either the employes and their families or to the transportation companies, careful consideration should be given to the recommnedations for the amendment of the Erdman Act, which have been made from so many sources interested in the well-being of the Country.

The experience arising from these larger wage controversies places a serious responsibility upon those whose duty it is to enact proper legislation governing the relations between employer and employe, to consider whether the Erdman Act should not be amended to increase the number of arbitrators and thereby constitute a Board of sufficient size to properly represent the public as well as the parties to the controversy, and to direct the necessary far-reaching investigations and fully share the responsibility of an impartial determination of the equitable and economic questions arising from such disputes. It will also be found necessary to provide a longer time than thirty days specified in the Act for the consideration of the subject and the rendering of a decision.

It may not be possible to prevent strikes or lockouts by requiring compulsory arbitration, but it is wise to consider whether an obligation should not be placed upon the employer and employe to advise the authorities of the questions at issue before any lockouts or strikes can become effective, so that by due publication and inquiry the Government and the public may be fully informed of the extent of the controversy and its causes.

The net revenue of rail operations shows an increase of $3,710,633.96.

Taxes continue to increase, the charges for the present year exceeding those of the previous year by $332,649.28.

The tonnage for the year increased 14.52% and tonnage mileage increased 13.35%, while the freight train mileage increased only 10.95% due to an increased train load of 2.17%.

The passengers carried increased 7.42% with increased passenger mileage of 6.74%, while in the face of this, the passenger train mileage increased only 1.88% due to the average number of passen-

Synopsis of the Sixty-Sixth Annual Report of the Pennsylvania Railroad Company.—Continued.

gers per train increasing 4.84%.

In the deductions for lease of other roads the larger payments are due to the increased revenue earned on Roads operated on the basis of Net revenue.

The decrease in the interest deductions for funded debt, compared with 1911, was due to the maturity and payment on May 1st, 1912, of the River Front Railroad Company First Mortgage Bonds; and on November 1st, 1912, of the Pennsylvania Railroad Company 3½% Convertible Bonds of 1902, and also to the payments of principal due on Equipment Trust Obligations.

The Company has in contemplation many important and extensive necessary improvements, a large portion of which should not be charged to Capital Account, and for which the Reserve for Additions and Betterments will be utilized, such as the improvements of Broad Street Station, Philadelphia, and its approaches and facilities; improvements on the Allegheny Division hereinafter referred to; the elimination of grade crossings and elevation of tracks on the New York Division, from Colonia eastward, through the City of Rahway, to Bay Way, Elizabeth, and a slight change of line in the City of Elizabeth, where the line has already been elevated. It also contemplates the abolition of additional grade crossings in Philadelphia, Lancaster, Lilly, Johnstown Freeport, Wilkinsburg, Pittsburgh, and other points on its lines when the local authorities cooperate in making the eliminations. The Company also has in contemplation the construction of a new double-track steel bridge over the Allegheny River at Kiskiminetas Junction on an improved line to take the place of the present single-track bridge.

The Capital Stock was increased over the previous year by $100.00, of which $50.00 was issued in exchange for Fractional Convertible Bond Receipts, and $50 for Dividend Scrip dated May 31, 1893.

The Funded Debt and Equipment Trust obligations were reduced as follows:—

Redemption through Sinking Funds:	
Consolidated Mortgage 3½% Bonds due July 1, 1945.....	$66,930.00
Equipment Trust Loan due 1914..	121,000.00
Collateral Trust Loan Bonds 4½% due June 1, 1913.....	51,000.00
Philadelphia, Wilmington and Baltimore Railroad 4% Stock Trust Certificates due July 1, 1921.....	114,000.00
Payment at Maturity of:	
Ten Year Gold Convertible 3½% Bonds.....	10,222,500.00
River Front Railroad Company's 1st Mortgage 4½% Bonds.....	212,000.00
Equipment Trust obligations.....	6,441,100.07

It will shortly be necessary for the Company to provide capital for the $10,222,500. of Ten Year Gold Convertible 3½% Bonds which matured November 1st, 1912, and for $9,735,000.00. of Collateral Trust Loan 4½% Bonds due June 1st, 1913, together with maturing equipment trust obligations, and also for new construction work, the extension and improvement of terminals, track and facilities, and the purchase of equipment. The matter is now receiving careful consideration, but no decision has yet been reached as to the form or extent of the proposed financing.

The issues of Equipment Trust Securities during the year consisted of $7,000,000.00 of Pennsylvania General Freight Equipment Trust Certificates of 1912, of which the Pennsylvania Railroad Company's proportion was $1,572,100.00. There were thus furnished for the Pennsylvania Railroad Company 875 steel underframe and steel bodyframe refrigerator cars; for the Pennsylvania Company 1,000 steel underframe and steel bodyframe automobile box cars; for the Pittsburgh, Cincinnati, Chicago and St. Louis Railway Company 3,000 all steel coke gondola cars; and for the New York, Philadelphia and Norfolk Railroad Company 800 steel underframe ventilated box cars and 50 steel underframe gondola cars, an aggregate of 5,725 cars.

During the year the final payments were made under 19 series of equipment trusts, the original issue of which amounted to $19,000,000. These series covered 3,325 steel underframe box cars, 3,000 steel hopper gondola cars, 6,000 steel underframe long gondola cars, in service on the Pennsylvania Railroad; 500 refrigerator cars, 1,500 steel hopper gondola cars, 600 steel underframe long gondola cars, 500 steel flat cars, sub-leased to the Pennsylvania Company; 210 steel underframe box cars, 300 steel hopper gondola cars, 400 steel underframe long gondola cars, subleased to the Pittsburgh, Cincinnati, Chicago and St. Louis Railway Company; 200 steel hopper gondola cars, sub-leased to the Cleveland, Akron and Cincinnati Railway Company; and 85 refrigerator cars sub-leased to the Grand Rapids and Indiana Railway Company, representing in all 16,620 cars.

The cars therefore have become the property of the respective companies which paid the cost thereof.

The expenditures for acquisition of property during the year were mainly to cover additional right of way for new lines, elimination of grade crossings, and for passenger terminal and station improvements at Broad Street Station, and other points in Philadelphia, and for the enlargement and improvement of freight stations and yard facilities, at Hamburg Junction and Greenwich in Philadelphia, Elizabethtown, Altoona, Cresson, Uniontown, Tarentum, Peterson and New Kensington.

The block signal system on the main line between New York and Pittsburgh was further improved by the installation of automatic signals on the Philadelphia Division between Dillerville Block Station and Branch Intersection, and on the Pittsburgh Division between Summerhill and Latrobe, and the work will be continued next year on the Middle and Philadelphia Divisions.

The Cortlandt Street Ferry House and Dock, New York City, which are being rebuilt, have so far progressed that the two ferry slips are now in operation, and the remainder of the work will be completed in 1913.

On the Newark Rapid Transit Line, described in the Annual Report for 1910, the Summit Avenue passenger station, Jersey City, was partially completed and opened on May 30th, 1912, and has since been finished and is accommodating a large amount of traffic. The Fourth Street Station in Harrison, N. J., on this line, will be completed early in 1913.

For the eastern section of the six-track system on the New York Division between Colonia, N. J., and Waverly, west of Newark, N. J., additional right of way has been acquired. This work comprehends station improvements, the elimination of fifteen grade crossings by the elevation of the four existing main tracks; and also the construction of two additional elevated tracks between those points. Construction work is now proceeding between Colonia and Elizabeth, and should be completed in 1914.

The State of New Jersey, in which your Company and other lines have extensive mileage, is now considering the enactment of new legislation for the elimination of grade crossings. It has long been the policy of the Company to encourage the removal of grade crossings, and it has spent large sums of money for that purpose, but still greater results in this direction would have been attained had the States and municipalities been authorized, or willing, to co-operate in the outlay. The railroads in many instances have been the pioneers in the development of the towns, cities and territories served by them, and their existence has materially added to the population and prosperity of these communities. But with so many crossings still to be eliminated, the greatly increased payments for taxes and other items, and outlays for improvements in their railroads and equipment, which still confront them and are essential to public safety and convenience, it seems unfair and unwise to propose that the railroad companies should be burdened with either the entire cost, or an undue proportion of the cost, of eliminating grade crossings, many of which have been opened subsequently to the construction of the railroads, and against their strong protest. For these reasons and on account of the great increase of motor, street railway, vehicular and pedestrian travel, it is hoped that the legislation now pending will be so framed in the public interest, as to enable either the State, the municipalities or the railroads to take the initiative in the abolition of existing crossings, and to co-operate in carrying on the work by providing a fair and equitable division of the expenditure, as do the laws of New York, Massachusetts, Vermont, Ohio and other States.

The improvement of the passenger facilities in Philadelphia is still receiving consideration by the various departments in the service, and also by the Consulting Electrical Engineers of the Company. As outlined in the last annual report, it will necessitate (1) an increase in the tracks and

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Synopsis of the Sixty-Sixth Annual Report of the Pennsylvania Railroad Company.—Continued.

platforms, and the enlargement and improvement of the station facilities at Broad Street Station and its approaches as far as West Philadelphia Station and Yard; (2) the widening of the bridge, and its approaches, over the Schuylkill River and the adjoining entrances to Fairmount Park at Girard Avenue, by the construction of two additional tracks and a revision of the signals and interlocking, which is now proceeding, and (3) the enlargement of North Philadelphia passenger station and its approaches by the addition of four new tracks with high level island platforms, and other improvements including the relocation of the junction of the Chestnut Hill Branch with the New York Division at that point, which is now under contract.

In brief the Philadelphia Terminal problem is to provide increased terminal facilities and approaches for approximately 20 years, for lines which equal eight double-track railroads.

An Ordinance was obtained from the City of Philadelphia to erect a new eight-track concrete steel bridge across North Broad Street near North Philadelphia Station.

Pending the results of the investigation of terminal improvements for Broad Street Station, Philadelphia, satisfactory progress is being made in the acquisition of the necessary real estate.

Extensive repairs and additions are being made to the West Philadelphia stock yards of the Company, and the piers at Greenwich, Philadelphia, are being improved, and the dock extended, to facilitate the loading of coal at that point.

On the Bald Eagle Valley Branch the grades are being revised and the line is being double-tracked between Mount Eagle and the Howard Rolling Mills and passing sidings are being extended, to provide for the increased tonnage passing between the Main Line and the Erie Division via Tyrone and Lock Haven.

On the Pittsburgh Division four grade crossings are being abolished in Braddock, Pa., by the construction of three under-grade bridges and one over-head bridge; work is in progress on the elimination of grade crossings in the City of Pittsburgh at Homewood Avenue, and the work of eliminating all grade crossings in the Borough of Wilkinsburg has commenced.

In West Brownsville Yard, Pa., the change of grade and extension of track facilities, necessary to connect with the new double track Monongahela River bridge, at that point are almost completed.

On the Sunbury Division the double tracking was further extended during the year by constructing second tracks at Boyd and South Danville, and between Port and Honey Pot Yard, Pa.

At Montgomery, Pa., the sixteen span double track steel bridge over the West Branch of the Susquehanna River, replacing the single track bridge at that point, will be completed this year.

The aggregate expenditures for Construction and Equipment during the year upon the owned and leased lines of this Company was $16,322,247.38 for which the Company has been reimbursed by leased lines to the extent of $727,502.41. The sum of $888,107.06 was expended on the Western New York and Pennsylvania Railway, Cambria and Clearfield Railway, and other Branch Roads, and charged against Income as Expenditures on Branch Roads for Construction. The expenditures on the line owned and on the Harrisburg, Portsmouth, Mt. Joy and Lancaster Railroad and the United New Jersey Railroad and Canal Company, operated under long-term leases, comprising the main line system between New York and Pittsburgh, amounted to $14,706,637.91, which has been disposed of as follows:—

Charged to Income as Extraordinary Expenditures.....	$1,841,127.72	
Charged to Reserve for Additions and Betterments appropriated out of Income of previous year.....	3,652,567.37	
		$5,493,695.09
Charged to Capital Account:		
Road.....	$3,602,489.93	
Equipment.....	5,610,452.89	
		9,212,942.82
		$14,706,637.91

Under the Balance Sheet prescribed by the Interstate Commerce Commission, the Road and Equipment Account includes not only these capital charges, but also similar expenditures made out of Income since June 30th, 1907. Therefore, the expenditures charged against Income and against the Reserve for Additions and Betterments, created in previous year have been so included.

The Additions and Betterments expenditures on the Harrisburg, Portsmouth, Mt. Joy and Lancaster Railroad and the lines of the United New Jersey Railroad and Canal Company, both operated by this Company under leases for 999 years have also been included under the Road and Equipment Account as "Leased Lines—Road."

Expenditures durjng 1912.....	$1,979,160.61
Expenditures June 30th, 1907, to December 31st, 1911.....	9,940,950.10
	$11,920,110.71

An offsetting liability appears on the credit side of the Balance Sheet, entitled "Additions to Property since June 30th, 1907, through Income," in which is carried not only the $5,493,695.09, but also the payments through Income on account of Car Trust Certificates amounting to $2,901,727.99 for 1912, and $637,644.08 for previous years, aggregating $9,033,067.16.

On account of principal and interest of Water Supply Trust Certificates $524,351.81 were expended during the year and charged against Income.

The construction of the New York Connecting Railroad, owned jointly by this Company and the New York, New Haven and Hartford Railroad Company, as described in the report of last year, is proceeding. Additional contracts have been awarded for foundations and masonry of Bronx Viaduct; foundations and masonry of Piers for Bronx Kills Bridge, Randalls Island Viaduct, Little Hell Gate Bridge, and Wards Island Viaduct; for the bases and foundations of the East River Bridge on Wards Island and Long Island City; and for the Long Island Viaduct; for foundation and masonry between Lawrence and Stemler Streets; and for grading and masonry between its connection with the Pennsylvania Tunnel and Terminal and the Long Island Railroads at Woodside Avenue and Fourteenth Avenue.

The increasing traffic between Pittsburgh and Buffalo via the Allegheny Division and the Western New York and Pennsylvania Railway requires the construction of three tunnels and the reduction of grades and other improvements on the Allegheny Division between Pittsburgh and Oil City, and the reduction of grades and improvements of the railroad and yard facilities on the said railway between Oil City and Buffalo, via Brocton and the Chautauqau Branch, to more fully utilize it as the principal route for passenger and freight traffic between these cities, and the work has been authorized. As the result of these improvements, the heavy grades will be restricted to relatively short distances between the said cities, and this route, which was objectionable because of heavy grades, will be over 58 miles shorter than the present route via Oil City, the Salamanca Branch, and Olean, and will have not only this advantage in distance, which will produce satisfactory operating economies, but its use will postpone for several years the double tracking and other expenditures on the present route.

To meet the Construction and Equipment expenditures on the Western New York and Pennsylvania Railway during the year, advances aggregating $525,212.30 were made by this Company, and charged against the net income of the Lessee Company. This Company will also be required to provide funds for the improvements heretofore mentioned on that railway during the year 1913.

On the Cambria and Clearfield Railway, the Cherry Tree and Dixonville Railroad, and the Pennsylvania, Monongahela and Southern Railroad, various short branches were built to reach coal mining operations.

This Company advanced $184,591.36 to the Cambria and Clearfield Railway Company to meet its construction expenditures, which was charged against the net income of the Lessee Company.

It has been deemed advisable to absorb the Cambria and Clearfield Railway Company, which for many years has been owned and operated by this Company in connection with its main line, the construction of that road and its several constituents having been promoted by this Company for the development of the bituminous coal traffic in the Clearfield region. The necessity for maintaining that Company as a separate corporation no longer exists, and the agreement providing for its acquisition will, in accordance with notice given

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Synopsis of the Sixty-Sixth Annual Report of the Pennsylvania Railroad Company.—Continued.

to the stockholders, be submitted for approval at the annual meeting.

The sum of $94,408.94 was advanced to the Pennsylvania, Monongahela and Southern Railroad Company to meet its construction expenditures for 1912, for which it reimbursed this Company by the issuance of its stock and bonds in equal portions.

A fireproof grain elevator of enlarged capacity and modern facilities is being erected by the Girard Point Storage Company at Girard Point, Philadelphia, to take the place of the present elevator.

On the Philadelphia, Baltimore and Washington Railroad, the work of reconstructing the bridges over the Gunpowder and Bush Rivers is proceeding, and will be finished during 1913. The reconstruction of the bridges over Stemmers Run, Back River and Gwynn's Falls will also be undertaken in the present year.

The installation of automatic block signals on the Maryland Division has been completed between Washington and Baltimore, between Principio and Iron Hill, and between Ruthby and Wilmington, and the work will be continued next year.

On the Northern Central Railway the work of enlarging the Mount Vernon Yards, Baltimore, was entirely completed. The freight facilities at York, Pa., Highlandtown, Md., and at Marysville Yard, are also being enlarged and improved to accommodate the increased traffic. These improvements will probably be completed in 1913.

The execution and delivery of the proposed lease by this Company of the railroad, property and franchises of the Northern Central Railway Company, is still delayed by litigation. Under its provisions, which have been fully explained in the Annual Report for 1910, the lease and rental payments became effective January 1st, 1911, and an accounting between the lessor and lessee from that date will be necessary if and when the lease has been duly executed and delivered in conformity with its terms,and conditions.

The Wilkes-Barre Connecting Railroad Company was incorporated during the year jointly by this Company and the Delaware and Hudson Company to provide a line, seven miles in length, from Buttonwood Yard on the Pennsylvania Railroad, west of the City of Wilkes-Barre, to Hudson on the line of the Delaware and Hudson Company, to facilitate the interchange of traffic between the two roads, and avoid its movement through the business centre of that city, and via the tracks of other railroads.

The surplus property fronting on Seventh Avenue between Thirty-second and Thirty-third Streets, New York City, owned by the Pennsylvania Tunnel and Terminal Railroad Company, a subsidiary of this Company, has been conveyed to the Pennsylvania Terminal Real Estate Company looking to its future development.

During the year the Company made advances to the Long Island Railroad Company aggregating $2,625,000, for the improvement of its railroad and facilities, and the construction of new lines and equipment, and will receive therefor securities of that Company.

Minor advances were also made to the Pennsylvania Tunnel and Terminal Railroad Company in 1912, for which its certificate of indebtedness to this Company has been issued.

The pensions paid during the year amounted to $646,375.34.

The stockholders will be asked to authorize an increase in the annual sum set apart for pension purposes from $700,000, to $750,000 per annum and to give authority to the Board of Directors to hereafter increase the pension appropriation to such extent as may, from time to time, be necessary to meet the purposes for which the Pension Department was created; such increase to be reported to the stockholders.

The additional appropriation is necessitated by the increasing number of pensioned employes, especially between the ages of 65 and 69 years; and the advances in wages made from time to time, which increase the average pension allowances.

The securities held by the Company, December 31st, 1912, at a valuation of $331,909,154.32, produced a direct income during the year of $14,527,491.56. During the year the Company increased its holdings of Norfolk and Western Railway Company Common stock, by $4,788,100.00 through the conversion of a like amount of Norfolk and Western Railway Company Convertible bonds, to which it had subscribed at par, during the year, and also acquired $3,000,000 of Pennsylvania Terminal Real Estate Company stock.

Effective May 8th, 1912, the name of the Buffalo and Allegheny Valley Division was changed to Northern Division.

By order of the Board,

SAMUEL REA,
President.

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The hump-yard system has never before been employed by any of the New England roads and expenditures connected therewith rising $2,000,000, that have now been entered upon by the Mellen lines, bid fair to be reflected in a short time in the most substantial betterment of New England's eastbound freight schedules, which in the past have been a principal subject of service complaints. At Mechanicville fully 40 per cent. of the freight brought into New England over Boston & Maine lines will be classified.

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Lv. Chicago	12.40 P. M.
Ar. Baltimore	9.15 A. M.
Ar. Washington	10 25 A. M.
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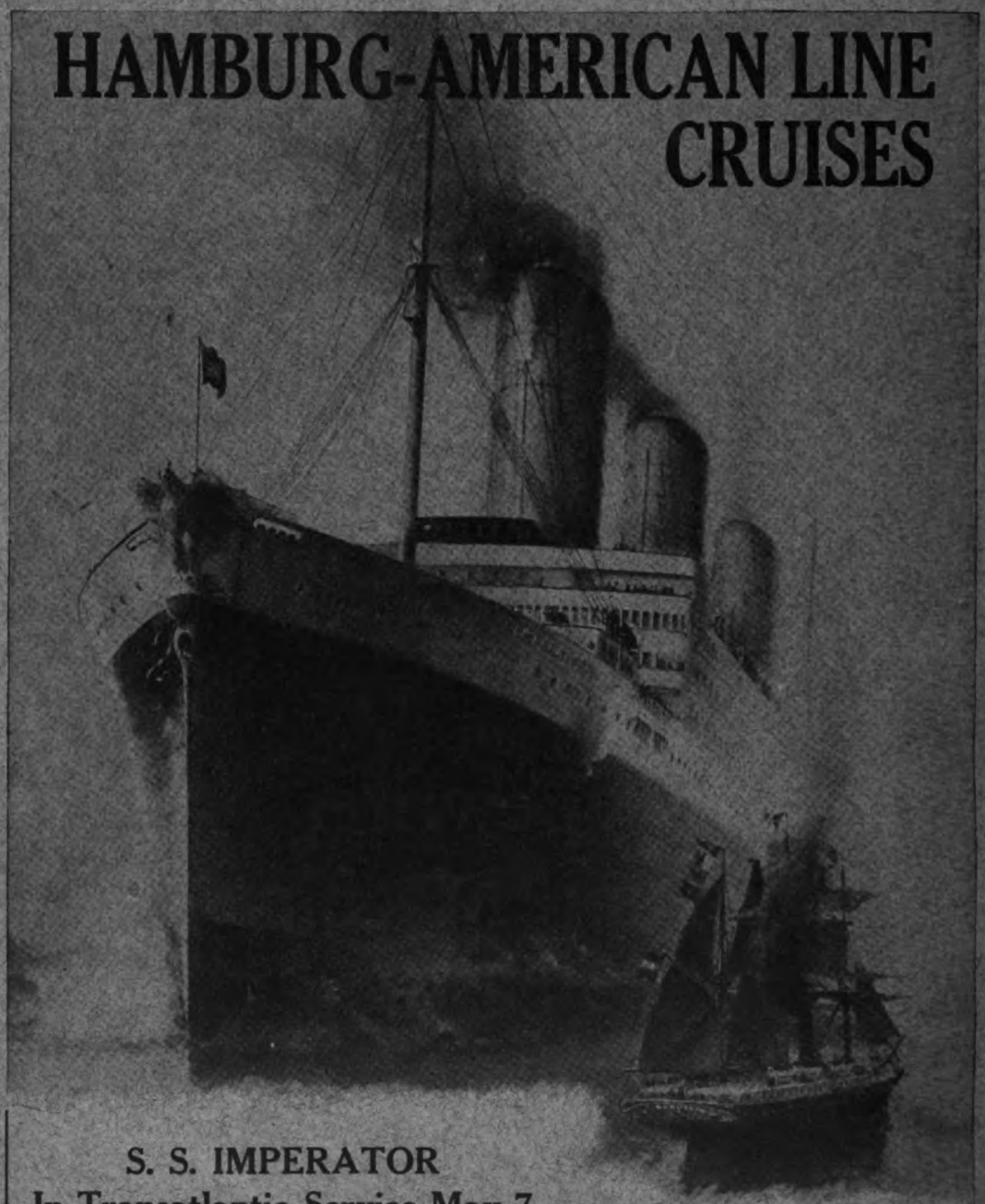

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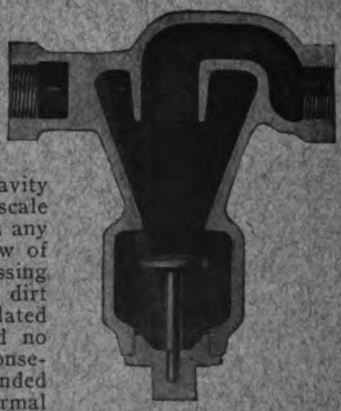

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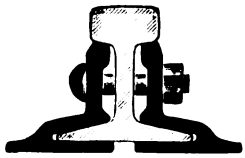

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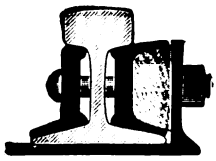

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Railway World

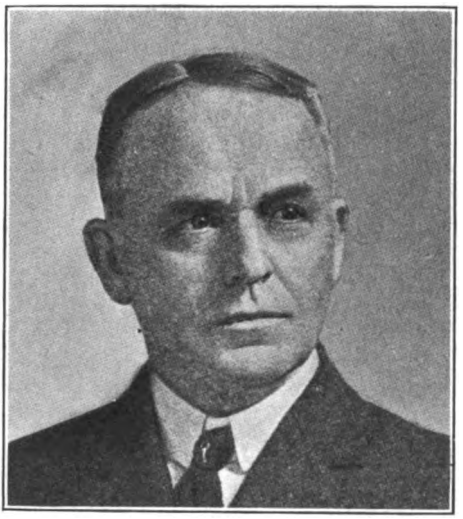
VOL. LVII. APRIL, 1913 No. 4

Important Developments in the Transportation Field

CURRENT DISCUSSIONS OF RAILWAY PROBLEMS

The railway presidents continue their policy of presenting their views upon current economic questions regarding which they are preeminently fitted to express intelligent opinion. Mr. William C. Brown, president of the New York Central lines, directs the attention of the country to the primary needs for improvement in agriculture. Speaking at the Interstate Agricultural and Industrial Conference at St. Joseph, Mo., on March 8th, he called attention to the low yield of American agriculture as compared with the results achieved abroad. The farms of the United States, he pointed out, produce an annual yield of only 14½ bushels of wheat per acre as compared with 31 bushels in Germany; only 30½ bushels per acre of oats as compared with 51 for Germany. Twenty-five years ago the yield of these crops in Germany was about the same per acre as the United States farmer is now procuring. The difference represents the results of science applied to agriculture. President Brown urged upon his audience the paramount importance of agricultural improvement. The results which have been achieved abroad can be duplicated in the United States. The conservation of timber land, of mineral resources and of water power are important. It is essential to the public welfare that these resources be widely utilized. But these forms of conservation are of little importance compared with the improvement of agriculture. The address closed with the following striking declaration:

"In every age and in every nation agriculture has been the foundation upon which national prosperity has been established and upon which its continuance has depended. In this great country of ours, with its vast resources of fertile, productive acres, buttressed as it has been in the past by other almost unlimited reaches of unoccupied, uncultivated land, equally fertile, the importance of agriculture has been very inadequately appreciated. Gradually the fact that farming—the cultivation of the soil—is the most important business in the world, is being recognized: and the earnest attention of not only this country but of every nation of the earth, is being anxiously directed to every effort looking to its improvement.



WILLIAM C. BROWN,

President, New York Central Lines.

"More to-day than at any time in our history the issue of national prosperity or adversity lies in the hands of the American farmer. Nothing should be left undone that will strengthen or encourage him in the great work in which he is engaged."

Mr. B. F. Yoakum, chairman of the Executive Committee of the St. Louis and San Francisco, is the most prominent exponent of the improvement of primary methods of transportation, and of the methods of distribution between producer and consumer. He seldom fails in his numerous public utterances, to bring one or the other of these phases of national economy prominently forward. In a recent statement, issued on his return from Texas, he discussed the problem of wagon transportation in that state as follows:

"In 1912, 60,000,000 tons of farm and other business were hauled over the public wagon roads of Texas. The average haul was twelve miles and the average cost twenty-one cents. For each ton moved one mile the same tonnage hauled by a railroad costs about one cent per mile. The difference is twenty cents per ton for each mile hauled. This carried out logically shows that each mile of wagon haul replaced by railroad transportation saves $12,000,000 annually to the people of the state.

"The average haul over wagon roads of Iowa is

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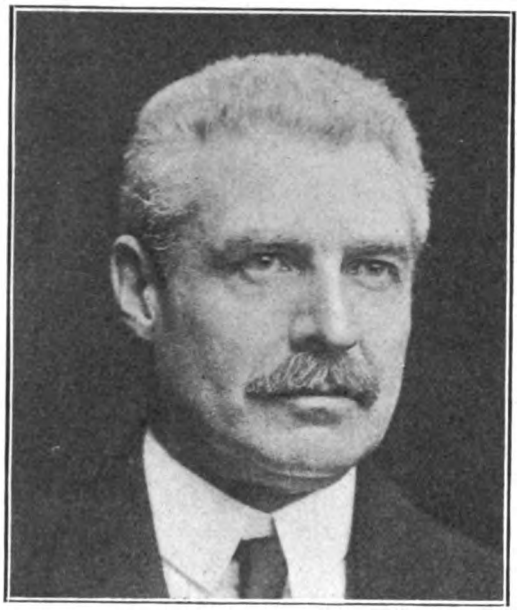
six miles. If Texas were supplied as well with railroads as Iowa on an area basis and the average haul over the wagon roads of Texas was reduced from twelve to six miles, the annual saving to the people of the state would be $72,000,000."



SAMUEL REA,
President, Pennsylvania Railroad Company.

An amendment of the Erdman act, which shall furnish a permanent agency for adjusting the constantly recurring disputes between the railways and their employes, is urged by President Rea, of the Pennsylvania Railroad, in the annual report of the company. He specifically stated that the reasons for submitting the dispute between the firemen and the Trunk Line railroads to arbitration under the Erdman act was the reluctance to impose upon the country the hardships of a general strike.

"Considering the magnitude of the interests in this country and those countries with which it has commercial relations that would be affected by the interruption of railroad traffic and the serious results that would ensue therefrom; the stoppage of food supplies, fuel and other traffic, the inconvenience, losses and suffering to the general public whose interest is paramount, and to the workers in other industries dependent on a reliable transportation service and in no way responsible for railway disputes and the failures of strikes to produce any permanent advantages to either the employes and their families or to the transportation companies, careful consideration should be given to the recommendation for the amendment of the Erdman act, which have been made from so many sources interested in the well being of the country.

"The experience arising from these larger wage controversies places a serious responsibility upon those whose duty it is to enact proper legislation governing the relations between employer and employe, to consider whether the Erdman act should not be amended to increase the number of arbitrators and thereby constitute a board of sufficient size to properly represent the public as well as the parties of the controversy and to direct the necessary far-reaching investigations and fully share the responsibility of an impartial determination of the equitable and economic questions arising from such disputes. It will also be found necessary to provide a longer time than the thirty days specified in the act for the consideration of the subject and the rendering of a decision.

"It may not be possible to prevent strikes or lockouts by compelling arbitration, but it is wise to consider whether an obligation should not be placed upon the employer and employe to advise the authorities of the question at issue before lockouts or strikes can become effective, so that by due publication and inquiry the Government and the public may be fully informed of the extent of the controversy and its causes."

President Truesdale, of the Delaware, Lackawanna and Western, in his annual report, calls attention to a circumstance which should engage the minds of all thoughtful men at this time when the question of railway wages is so prominent. On the morning of July 4, 1912, an accident occurred on the lines of this company near Corning, N. Y., resulting in the death of 39 passengers, and the injury of 75 more. This accident as revealed by the investigations of the Interstate Commerce Commission and of the Public Service Commission of New York,

W. H. TRUESDALE,
President, Delaware, Lackawanna & Western Railroad.

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was charged entirely to the engineer, who ran by three standard block signals, one set at "Caution" and two at "Danger" and also one in the hands of a flagman. Prior to taking this run the engineer had been off duty thirty hours and the evidence showed that he had employed a large part of the time in saloons. Owing to various influences brought to bear in his behalf, although this engineer was indicted by the grand jury upon the finding of the coroner's jury, the judge who was to have tried the case dismissed the indictment, and the engineer was allowed to go free without trial. He remains a member in good standing of the Brotherhood of Locomotive Engineeers. About the same time a special agent of the company engaged in driving off trespassers accidentally killed one of them. He was immediately arrested, tried and sentenced to a fine and six months' imprisonment. President Truesdale upon this set of facts, makes the following impressive comment:

"The mere statement of the facts in these two cases furnishes an impressive illustration of the unusual and unaccountable state of the public mind as respects its attitude toward the railway companies, as also the relations that exist between the latter and their employes. Under the provisions of the multitude of laws, Federal and State, which exist and others that are constantly being enacted the duties and responsibilities of the railways, both to the public and to their employes, are made more onerous and burdensome, while, on the other hand, no similar requirements are imposed on the individual employe either to fit himself or to keep himself in physical condition to perform the duty which is expected and required of him in order to enable his employer, the railway company, to meet its obligations.

"This situation, with resulting failure to realize responsibility, coupled with the insidious and far reaching influences continually at work to undermine loyalty, destroy discipline and lower efficiency in the rank and file of railway employes, without question constitutes to-day the most serious and perplexing problem with which the railway managers of the country have to contend."

SLIGHT INCREASE IN RAILWAY MAIL PAY

The Committee on Railway Mail Pay, acting on behalf of the 268 railway companies throughout the United States, won a slight concession from the last Congress, in the matter of increased pay to the carriers for carrying the extra mail burden imposed by the parcel post service. The Postmaster General is authorized to add five per cent to the compensation paid for transportation on railroad routes on July 1st, 1913.

According to President Ralph Peters, of the Long Island Railroad Company, vice-chairman of the committee, this amendment is only a short step in the direction of securing adequate pay for carrying the mail. It can add, at the outside, only about $2,000,000 additional compensation to the amount whch the railroads are now receiving, and only partially makes up the loss which the railroads are sustaining from the larger burdens which the parcel post places upon them. We cannot doubt that the entire subject will be speedily reopened. The glaring injustice of changing the terms of a contract to the prejudice of one party to the contract, and against his consent, a method of procedure which would not be possible with any contract to which the Government was not a party, is, it is believed, now sufficiently apparent to influence Congress to grant the demand for a general reweighing of the mails this fall, and for the granting of compensation commensurate with the service rendered.

ALBERT BURLESON,
The New Postmaster General.

THE VALUE OF A PHYSICAL VALUATION

The physical valuation bill is now a law; the work, will, it is estimated, cost about $12,000,000 to be equally divided between the railroads and the Government.

The bill requires a report by the Interstate Commerce Commission of all kinds of value, tangible and intangible, of the property of the railroads which is used in their business as common carriers. The bill orders a report in detail on each piece of prop-

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PROF. J. R. COMMONS,
University of Wisconsin.

SENATOR R. M. LAFOLLETTE,
of Wisconsin.

PROF. EDW. H. BEMIS,
Public Utility Expert, Chicago.

PROFESSORS COMMONS AND BEMIS ASSISTED SENATOR LAFOLLETTE IN THE PREPARATION OF THE PHYSICAL VALUATION BILL.

erty, the original cost to date, the cost of reproduction now, the cost of reproduction less depreciation, and an analysis of the methods by which these several costs are obtained. The commissioner is required to return a report separately on other values and elements of values of the property of common carriers, not necessaarily used in its business as a common carrier.

A return is also required on "the original cost of all lands, right of way, and terminals owned or used for purposes of a common carrier and ascertained as of time of dedication to public use and the present value of the same and separately the original and present cost of condemnation and damages or of purchase in excess of such original cost or present value."

A report by the Commission is also directed upon the "history and organization of the present and of any previous corporations operating such property; upon any increases or decreases of stocks, bonds or other securities in any reorganization upon moneys received by any such corporations by reason of any issues of stocks, bonds or other securities; upon the syndicating, banking and other financial arrangements under which said issues were made and the expenses thereof; and upon the net and gross earnings of such corporations; and shall also ascertain and report in such detail as may be determined by the Commission upon the expenditures of all moneys and the purposes for which the same were expended."

The work which will be done by the railroads will be largely voluntary, due to their desire that the valuations reached by the employes of the Interstate Commerce Commission shall be checked and compared with valuation and appraisals by engineers in whom the railroads have confidence.

The RAILWAY WORLD has always contended that the physical valuation of the railroads, so far from injuring them, will result in marked increases in their rates. It is well known that the railroads of the United States could not be duplicated for the present face value of their stocks and bonds. The framers of the valuation bill had this in mind, since they order the Commission to make extensive investigations into the history of railroad costs with the evident intention of offsetting the enormous present values which the investigation will disclose, and of answering the demand for higher freight rates with the argument that the railroads are not entitled to a return on increased values which have resulted from the rapid development of the United States. This answer will not, however, avail. If the valuation of American railroads discloses the fact that their present revenues do not represent what the courts will term a reasonable return on that value, a successful demand can be made on the part of the railroads for higher rates. That such will be the result, most well informed students of railway conditions are agreed.

Some interesting questions are, however,

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suggested by this view of the outcome of the effect of the investigation. American railroads are not uniformly capitalized. The capitalization of certain companies is far in excess of the value of their physical property. On the other hand, companies operating in the Trunk Line territory are greatly under capitalized. In the case of particular railroads the results of the valuation may be used to advance rates, and the same will be true if the Commission can be persuaded to consider the railway situation as a whole. It is not to be expected, however, that uniform results upon this point are to be achieved. The problem of valuation in itself is extremely difficult of solution and the greatest divergence of opinion upon many points exists among experts. The direction of a resolution to delve into the history of railroad costs complicates the problem tenfold.

JAMES MCREYNOLDS,
The New U. S. Attorney General.

FINDING A SOLUTION FOR A DISSOLUTION

Owing to the opposition of the California Railroad Commission to certain features of the proposed plan for separating the Union and Southern Pacific, the plan has been abandoned. The chief ground on which the Commission refused its consent, was the exclusive lease of the Southern Pacific connecting link between Oakland and Sacramento, known as the Venetia Short Line. The Commission insisted that if the Southern Pacific granted the Central Pacific the right to use this cut-off, it should accord to all competing carriers a like privilege on the same terms.

The special committee of Union Pacific directors, which had the dissolution plan in charge, had anticipated this objection and had made a modification of the plan by which, instead of the previous agreement for trackage rights and joint terminals between the two companies, concerning which conditions had been imposed by the California Commission, provisions were inserted for the interchange of traffic, limited to the interstate traffic, over which the California Commission had no jurisdiction.

There remained, however, for the approval of the Commission, a disposition of the lines north of Tehana, and the lease of the Central Pacific to the Union Pacific. The Commission refused to give its approval to these dispositions, pending its examination of the plan for interchanging traffic. The time limit fixed by the underwriting syndicate which had guaranteed the sale of the $126,650,000 Southern Pacific stock having expired, the plan was withdrawn and the committee must begin all over again. Any new plan will probably be deferred until the Circuit Court has designated in its decision those matters which must be left to the jurisdiction of the California Commission, among these is the question of the joint use of the Venetia cut-off, and the question as to whether the Central Pacific, after its sale, shall be permitted to use all terminals and spur tracks of the Southern Pacific within the state. So far as the question of lease or sale of the Central Pacific is concerned, the California Commission has signified its willingness to waive objections to the sale of the Central Pacific to the Union Pacific if the Attorney General or the court thinks best. The Commission's approval, it has also intimated, would be given to a lease of the Central Pacific to the Union Pacific.

ARBITRATING THE FIREMEN'S WAGE CONTROVERSY

A most significant statement was made at the meeting of the Fireman's Arbitration Board by the chairman, Judge William L. Chambers, on March 15th. In reply to comment by the railroad's representative, bearing on the question of the ability of the railroads to pay the advances demanded by the firemen,

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ALBERT PHILLIPS,

Vice-President of the Brotherhood of Locomotive Firemen and Enginemen, who represents the firemen on the Committee arbitrating under the Erdman Act.

he said that he did not think it worth while for the contestants to devote too much attention to the railroads' ability to pay. The real question, in his opinion, was whether the firemen and other employes, had to work harder than formerly and whether their efficiency was greater than it has been. If such were the case, the argument for advanced wages might be made out. The problem to be solved by the Board is essentially one of wages. The firemen asked for increases based upon the sizes of the locomotives fired, which would give them a wage of from $2.40 to $4 a day of ten hours or less. On the heavier locomotives two firemen are demanded.

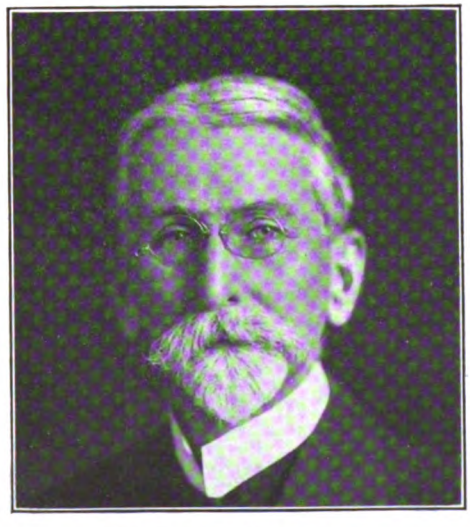
A large amount of testimony has been taken along the lines indicated by the chairman, but an effort has also been made to prove that the railroads can afford to pay the advance. The usual statistical "demonstration" has been made on behalf of the firemen by Prof. W. Gett Lauck, a statistician, who claims that the compensation of the firemen has increased much less rapidly than the corporate income of the company. The substance of the remaining testimony presented on behalf of the firemen was that the work demanded of them was far more severe than formerly, and that the advancing cost of living had absorbed the moderate increase in wages which they have received.

At the opening of the railroads' case, Mr. Elisha Lee, chairman of the Conference Committee of Railroad Managers, took a decided stand in opposition to the contentions of the firemen. He pointed out the unfairness of the position in which the railroads are placed. They are responsible for the performance of a public service; if they do not perform it they may lose their privileges. He continued:

ELISHA LEE,

Assistant to General Manager, Pennsylvania Railroad, who presented the opening argument for the railways.

"This board represents the public in a peculiar sense. It embodies, primarily, the widespread and justifiable view, that strikes on public utilities should never be permitted to take place. It gives visible evidence that public convenience is paramount, and to that end all interests must bow.



WILLIAM L. CHAMBERS,

Who, as independent Member of the Arbitration Committee, holds the balance of power and will virtually decide the Controversy.

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"To such sentiment the railway companies feel a keen sense of responsibility. To our firemen friends, however, this sense of responsibility does not seem so acute. They represent no one but themselves; they cannot experience the direct results of public displeasure. Railway employes have come to know that a strike which would tie up traffic is well nigh unthinkable. The men make large demands upon railway managers, not expecting those demands to be granted, but believing that arbitration must take place, and the splitting of difference between what they demand and what the railways offer will result in their favor."

Mr. Lee then went on to explain to the Board that the demands of the firemen were part of a well concerted program of exaction practiced upon the railroad by the various unions, the basis of which was the differential in favor of railway employes in the West and South. If a large part of the present demands are granted, the Western firemen will begin an agitation to re-establish the differentials.

The outcome of the dispute is hard to foresee. The suggestion made in many quarters that the railroads should be allowed to increase their rates in order to pay the higher wages demanded would offer solution only in case it were coupled with some agreement with the leaders of organized railway labor as to the percentage of total railway earnings to which they would limit their future railway demands. In the absence of such a standard any considerable advance in rates would be but the signal of a new campaign for higher wages in which the same sinister argument—the threat of a strike, would be employed. In our opinion, an early solution of the difficulty is not likely. After the physical valuation of railroad property has been completed, and the fact has been clearly established, that the returns on railway capital are not unreasonable, it may be possible to reach some agreement, either with or without the force of law, which will establish to the investor as a primary right, a certain amount of railway profit, thereby furnishing a basis upon which the wages of railway labor may be determined.

THE NEW ADMINISTRATION

The advent of a new Administration is always of great interest to business men and investors. Each year sees the scope of government control of trade and industry widen, and deepens the concern with which business men, when they have adapted themselves to one set of laws and administrative policies, regard the new Administration which may force them to radically reorganize their business methods. The general tone of hesitation in finance and business, which has been observable during the last three months, is not due to any defect in fundamental conditions but solely to the apprehension of what the new Administration will mean. During the campaign, which closed with the election of Woodrow Wilson, much was said, both by Democratic orators and by their opponents, which might cause serious foreboding. The Democratic candidate openly avowed himself as the representative of the progressive wing of his party. He was supported by men who stood for radical revision of the tariff and financial systems, stricter control of railroads, drastic enforcement of all legislative statutes, and in general, for the policy which must be regarded as frankly hostile to vested interests. Especially did the tariff policy of the Democratic party cause uneasiness and alarm. American industries are so bound up with the existing system of protection that to threaten a drastic and general reduction of duties was equivalent to a threat of financial disaster. It is no wonder, then, that the business world has been anxiously scrutinizing the situation and the policies of the new Administration as these have developed.

The examination begins with the inaugural address. In so far as the President's utterances can be translated into definite statements, he declares himself in favor of the following policies:

First, certain measures of economic and business reform, including revision of the tariff and currency systems, and further amendment of corporation laws to admit of more perfect protection of the public against the exactions of monopoly.

Second, he declared himself in favor of conservation of our natural resources, putting foremost, under this head, the improvement of agriculture by bringing science to the aid of the farmer, and also indicating, as desirable subjects of Congressional action, the development of water courses, and the extension of Government forest reserves. President Wilson, also, gave much prominence to that reform which is usually described as "social betterment." The following passage is worthy of reading and preservation:

"We have been proud of our industrial achievements, but we have not hitherto stopped thoughtfully enough to count the human cost, the cost of lives snuffed out, of energies overtaxed and

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WILLIAM C. REDFIELD,
Secretary of Commerce.

WOODROW WILSON,
President of the United States.

WILLIAM B. WILSON,
Secretary of Labor.

broken, the fearful physical and spiritual cost to the men and women and children upon whom the dead weight and burden of it all has fallen pitilessly the years through. The groans and agony of it all had not yet reached our ears, the solemn, moving undertone of our life, coming up out of the mines and factories and out of every home where the struggle had its intimate and familiar seat."

And in another place:

"There can be no equality or opportunity, the first essential of justice in the body politic, if men and women and children be not shielded in their lives, their very vitality, from the consequences of great industrial and social processes which they cannot alter, control, or singly cope with. Society must see to it that it does not itself crush or weaken or damage its own constituent parts.

"The first duty of law is to keep sound the society it serves. Sanitary laws, pure food laws, and laws determining conditions of labor which individuals are powerless to determine for themselves are intimate parts of the very business of justice and legal efficiency."

Finally, the President pledged himself to do what he could to purify politics and to "cleanse, reconsider, restore and correct."

The address closed with a promise to do nothing which would impair property rights, and to have due regard for the limitations of existing institutions in formulating any scheme for their amendment.

We must, of course, accept without question, that President Wilson means exactly what he says: that he is firmly resolved so far as in him lies, to carry through the program which in briefest outline he set forth in his inaugural address. This program is indeed a drastic one. It is impossible to reconstruct the economic order of society in the thorough-going manner which the President demands, without inflicting vast damage upon property rights, because property rights have grown up in the scheme of things as they are, and any radical change in this scheme must necessarily destroy a large amount of the values which have been based upon it. If, indeed, the country is face to face with four years of reform, if the tariff is to be reduced to a revenue basis, if the banking and currency system is to be radically changed with a view to its decentralization, if laws for the regulation of corporations are to be strengthened and their administration stiffened, if, in a word, the Government control is to be broadened, and if Government is to be more active within the lines already laid down for its activities, then the caution, distrust and hesitation, which are everywhere manifest among business men, are well justified.

Furthermore, if in addition to these long standing propositions for economic reform we are to have a period of social readjustment by which minimum wages are to be established and the burdens upon employers of labor are to be increased, there is the more reason for business to move cautiously.

In expressing an opinion as to the course of action of the new Administration, we have to consider first, the composition of the Administration itself, and second, the composition of Congress, for without the co-operation of the House and Senate, no matter how cordial may be the disposition of the President to enact these various recommendations into law, he can do nothing. The President has selected a strong cabinet, so

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much is conceded. Although some of the new secretaries are comparatively unknown, there is no one of them who is insignificant. The head of the cabinet, Mr. Bryan, next to former President Roosevelt, commands the largest personal following in the United States. He is still a dominant influence. He stands for radical reforms to which advancing age has not in any degree weakened his allegiance. As Secretary of State, however, aside from the general influence which he will have as a member of the cabinet, it is not likely that his activities can have any business significance. That his influence will be emphatically on the side of peace, his past record sufficiently proves.

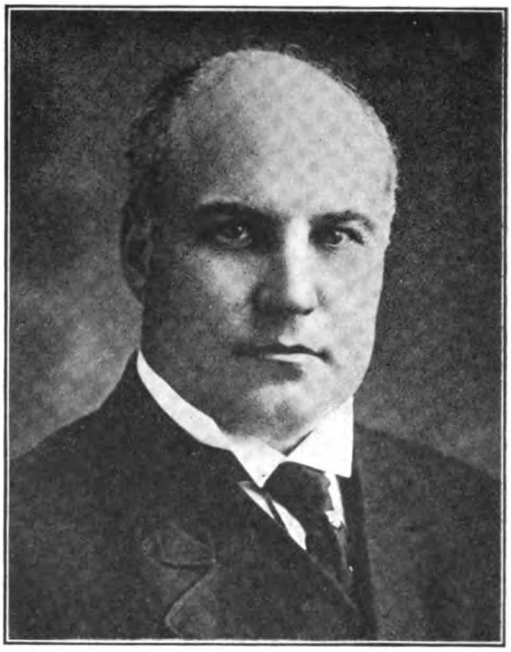
The Secretary of the Treasury, Mr. McAdoo, is a young man who has won distinction as the successful promoter of the Hudson and Manhattan tunnel project. The success of this undertaking has brought him wealth and a high standing among men of affairs. He is entirely acceptable to the so-called money interests, while, at the same time, he has always been noted for independence of thought and action in every relation in which he has been placed.

The Secretary of War, Mr. Lindley M. Garrison, was evidently appointed because of the President's personal knowledge of him. He held the position of Vice-Chancellor of New Jersey for ten years and has made a very high reputation as a careful and conscientious judge.

Attorney General McReynolds is already familiar with the work of the Department of Justice, having been appointed Assistant Attorney General in 1903 by President Roosevelt. In this capacity he had charge of some of the most important cases involving the enforcement of the Sherman anti-trust law, notably the Tobacco trust case. His appointment insures a continuation of the Wickersham policies of prosecution, although it is not yet known whether he will show an equal degree of wisdom to that manifested by his predecessor in agreeing to plans of dissolution which inflicted the minimum damage upon the industries affected.

The Postmaster General, Mr. Albert Sidney Burleson, has been a member of Congress from Texas for a number of years. He has been looked upon as one of the most substantial members of Congress and has been associated with Underwood, Clark and James as one of the House leaders. He is a skillful politician and brings a considerable measure of strength to the new Administration.

Mr. Josephus Daniels, Secretary of the Navy, is the editor of the Raleigh *News and Observer*, a close friend of William J. Bryan, an experienced politician and campaign speaker of note. He has been national committeeman from North Carolina for over sixteen years and has been in charge of the Publicity Department of the last two Democratic campaigns. His appointment was also regarded as a strong one from the standpoint of political influence.



FRANKLIN K. LANE,

Of California, who resigned the Chairmanship of the Interstate Commerce Commission to become Secretary of the Interior.

Mr. Franklin K. Lane, the New Secretary of the Interior, commands universal confidence. As Interstate Commerce Commissioner he has made an excellent record. The portfolio of the interior was the storm centre of the Taft Administration, as the appointment of Ballinger caused President Taft more trouble and was responsible for a large part of the unpopularity of his Administration. It is safe to say that Secretary Lane's administration of this department will not arouse serious criticism.

William Cox Redfield, Secretary of Commerce and Labor, is a prominent manufacturer of New York and has been a prominent figure in Brooklyn politics for many years. He is a vigorous tariff reformer and greatly interested in the expansion of American trade. He is a representative of the best type of progressive business man and his appointment has generally met with approval.

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WILLIAM HOWARD TAFT,
who again became a private citizen on March first.

The Secretary of Agriculture, Professor David F. Houston, comes from the University of Missouri, and is regarded as in every way qualified to carry on the important work of this department, which is probably one of the most important, although the least involved in controversy, of any of the Government bureaus.

The Secretary of Labor, William B. Wilson, is a representative of organized labor who has served two terms in Congress and is the author of the bill creating the Department of Labor. Aside from this, little is known of him

From every standpoint this Cabinet is strong. Its members, it is safe to say, will prove efficient administrators. Not only that, but most of them are skillful politicians who can be very helpful to the President in presenting his policies to the country, and in securing their adoption by Congress.

The President's Cabinet is well abreast of current radicalism and its members will doubtless cordially second, in their several fields, his efforts to carry into effect the program of progressive democracy. When we turn to the composition of Congress, however, there is much less reason for confidence in the ability of the Administration to carry its recommendations into law. Congress is dominated by the Southern Democracy, and the Southern Democracy is not only very conservative, but it is still dominated by a belief in the sovereign rights of the state as opposed to the power of the nation.

Colonel Roosevelt fully appreciates the situation; he believes, as do other clear-sighted politicians, that the leading political interests in the United States for many years to come will be along the lines of social and industrial readjustment. That this country must follow in the path of Germany and England, and must enact a variety of laws, state wide in scope, for the amelioration of conditions of the poor. Whether Colonel Roosevelt expects to regain power as a Progressive or as a Progressive Republican does not much matter. That he expects to regain power, however, is evident by his continued efforts to strengthen the organization of the Progressive party, and it is a fair inference that he bases his hopes upon the inability of the Democratic party to meet the popular demand for social betterment legislation.

A fair indication of the attitude of the Southern Democracy which will be dominant in Congress, is seen in the opposition to the confirmation of Charles P. Neill as Commissioner of Labor Statistics in the new Department of Labor. This opposition is based, ostensibly, upon reports prepared under Mr. Neill's direction when Commissioner of Labor, reflecting unfavorably on labor conditions in Southern cotton mills. Social welfare legislation, if it is to be effective, must be national in scope, and national action on these subjects from Congress, as at present constituted, will be difficult to obtain.

The main interest in the Democratic program centres in the various projects of economic and business reform which were made so prominent during the recent campaign. First on the list comes tariff legislation. It is the fear of radical reduction in tariff duties that is responsible for much of the uneasiness which now prevails. These fears, in our opinion, are unfounded. Tariff duties will be reduced in many cases; so much is certain. It is equally certain, however, that the present measure of protection which these duties afford is excessive, and considerable reduction can be made without seriously increasing foreign importation. Many Democratic states, such for example as North Carolina and Louisiana, are deeply interested in the maintenance of protective duty. There is, in our opinion, not the slightest reason to apprehend damage to any American industry from the tariff legislation of the present Congress.

It is believed that the new Administration favors the imposition of tolls on American coastwise commerce passing through the Panama Canal. Certain utterances of the President, before his election, point unmis-

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takably to the conclusion that he is in favor of the strictest possible observance of our treaty obligations, and at the same time, is entirely out of sympathy with a measure which would have the effect of granting an additional subsidy to steamers in the coastwise trade.

RECOMMENDATIONS OF THE PUJO COMMITTEE

Financial interests have been deeply concerned during the progress of the Pujo investigation lest the new Administration would push forward a scheme of radical revision of our banking and currency laws. Of these subjects the average Congressman is densely ignorant and it is always popular to attack the money power. An examination of the recommendations of the Pujo Committee, however, discloses no proposition whose enactment into law need cause any serious disturbance. The majority report, while it claims to have established the existence of a "Money Trust" and to find serious evils connected therewith, proposes a very modest program for the remedy of these evils. The committee proposes to prohibit the consolidation of two or more banks without the approval of the Comptroller of the Currency, to forbid directors serving on the boards of more than one bank in the same locality; to forbid stock ownership in national banks by other financial institutions; to prohibit the voting trust in the control of banks; to provide for cumulative voting in the election of national bank directors; to prohibit interstate corporations from constituting any banking establishment their sole fiscal agents and from depositing their funds with unsupervised private bankers; to prohibit national banks from engaging in underwriting syndicates; to forbid officers of national banks from borrowing from their banks; to provide for publicity of loans made by a director from his bank; to prohibit national bank officers from participating in underwriting syndicates; to limit the number of directors of national banks to not less than five nor more than thirteen; and to provide publicity for the assets and for the stockholding lists of national banks. In addition, the committee recommends that reorganizations of interstate corporations be placed under the control of the courts and of the Interstate Commerce Commission and that railroad security issues should be placed under the control of the Commission, and that provision be made for competitive bidding for these securities. The report also makes certain recommendations concerning

SAMUEL UNTERMYER,
the able Counsel for the Pujo Committee.

the conduct of stock exchanges and clearing houses, attempting to assert the power of Congress over these institutions because they use the United States mail. This is, however, to stretch the authority of Congress altogether too far and there is no expectation that purely local institutions, such as stock exchanges and clearing houses can be subjected to federal control.

As for the recommendations of the Pujo Committee for the amendment of laws governing national banks and interstate corporations, some of these proposed measures might be injurious but, in the main, they could be adopted without causing any serious disturbance or any marked departure from existing methods. There is, however, little prospect of immediate action upon these matters. The conservative majority in the Democratic party is evidently not anxious to grapple with the subject of fiscal reform, and this has been postponed until the tariff question is settled.

Additional railroad legislation is apparently not on the administrative program. Aside from providing for railroad valuation and for a revision of the laws relating to the settlement of labor disputes, no legislation specifically dealing with railway matters is likely to engage the attention of Congress.

It is impossible to derive from a survey of present political control of the United States, any well founded expectations of legislation seriously harmful to business interests. The outlook is, in our opinion, for an administration increasingly distinguished for conservatism in all matters affecting our fundamental business institutions.

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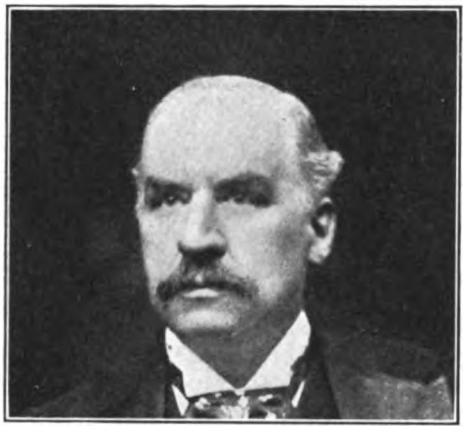

J. PIERPONT MORGAN,

Who Died on the Morning of March 31.

STATEMENT OF J. P. MORGAN AND COMPANY

A conclusive refutation of the arguments presented in the Pujo report is furnished in a letter from J. P. Morgan and Company, written in response to an invitation of the committee. The letter is too long to admit of more than a summary of its main features. The long experience, high authority and recognized disinterestedness of this banking firm gives extraordinary weight to their comments upon the attack which for some months has been in progress upon the American financial system.

The concentration of money in New York, the letter points out, is due to the fact that New York City furnishes the best market for money at the present time, a fact which is, in turn, explained by the defects in the national banking system which automatically compels interior banks to concentrate their reserve funds in New York City. The financial control inevitably resulting from this concentration of money, has not, the letter contends, ever been used either unwisely or unjustly, but in all cases with the highest regard for the public welfare. In this connection the bankers indignantly deny the insinuation contained in the resolution under which the money trust investigation was inaugurated, that certain groups of financiers are able to "create, avert and compose panics." As the letter points out there could be no possible motive for creating a panic in the minds of the men who are thus unjustly charged with this horrible crime, even if their high character and unblemished reputation did not furnish sufficient refutation of the charge.

The extent of the financial control upon which the Pujo Committee lays such stress, is, in the opinion of J. P. Morgan and Company, greatly exaggerated. This control, it was alleged before the committee by its counsel, who attempted to support his conclusion by testimony, is exerted by the system of "interlocking directorates." Upon this point the letter comments as follows:

"For the maintenance of such an impossible economic theory, there have been spread before your committee elaborate tables of so-called interlocking directorates from which exceedingly mistaken inferences have been publicly drawn. In these tables it is shown that 180 bankers and bank directors, serve upon the boards of corporations having resources aggregating $25,000,000,000, and it is implied that this vast aggregate of the country's wealth is at the disposal of these 180 men. But such an implication rests solely upon the untenable theory that these men, living in different parts of the country, in many cases personally unacquainted with each other, and in most cases associated only in occasional transactions, vote always for the same policies and control with united purpose the directorates of the 132 corporations on which they serve. The testimony failed to establish any concerted policy or harmony of action, binding these 180 men together, and as a matter of fact no such policy exists."

In further refutation of the argument that a dangerous centralization of money and credit has been developed, the letter points out that the banking resources of the United States outside of New York have increased much more rapidly than the resources of New York City. In reference to bank mergers, which the majority report proposed to prohibit, the bankers explain these consolidations by the necessity of increasing the size of financial institutions in order to care for the increased demands which the growth in population put upon them. In New York City it is pointed out, moreover, that the largest bank has resources amounting to only three fifths of the largest bank in England, to only one fourth of the resources of the largest bank in France, and to less than one fifth of the resources of the largest bank in Germany. In London there are ten banks with resources in excess of $200,000,000, five such institutions in Berlin and four in Paris. In New York there are only three. In fact, American banks and trust companies have not grown with sufficient rapidity to take care of the business which is offered them. As a result it is necessary for them, in order to handle, for example, bond issues of $100,000,000, to combine and co-operate; otherwise the business could not be done. The demand for increased banking accommoda-

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tion, in other words, is responsible both for the merger of financial institutions, and for such moderate degree of combination between them as has been reached.

Especially valuable is that portion of the letter which deals with the relations between the private bankers and the corporations for which they act as fiscal agents. A banking house which sells the securities of a corporation assumes a moral responsibility for the soundness of those securities, and to fulfil these responsibilities it is necessary that a careful watch should be kept upon the management of the issuing company, that it should be constantly advised as to the policy of proposed steps, and that the bankers should continually hold themselves in readiness to offer further assistance should that be necessary. A private banker serves as the intermediary between the great corporations seeking immense sums of money for the development of their properties, and thousands of investors who are seeking sound securities for their savings. No other method of marketing securities has ever been developed in this country than to sell them to investment bankers. It is only the strongest corporations whose stocks sell at a high premium, who can sell securities directly to their own members. As long as the investment banker is responsible for the soundness of the securities which he sells it must be conceded that he must be allowed a degree of supervision and control over the corporations issuing these securities.

The Pujo Committee is concerned with the question of competitive bidding for securities. It recommends, as we have seen, that enactment of laws providing for such competitive bidding. J. P. Morgan and Company discuss this point as follows:

"On this matter we are pleased to submit certain considerations which, we are confident, are borne out by the facts: First, in general and over a period of time, the sale of such securities is invariably subject to the competition of market conditions. We have not heard of an instance where any corporation failed to secure the benefit of a price for its issues as excellent as conditions at the time warranted. Second, in most of the leading commercial states, public service commissions pass with great care upon the prices at which the securities of all transportation and public utility corporations are sold. Third, competitive bidding, in the sense of having railroad and industrial securities offered practically at public auction, as in the same of municipal securities, is seldom or never practiced."

The reason for relying upon the banker is that the banker makes the corporation sure of its money, whereas if an appeal were made directly to the investing public the outcome would be very uncertain. The banker is frequently obliged to purchase and carry securities for a long time pending the development of a favorable condition in the investment market which will permit the sale of the bonds at a fair price. As a result of these fiscal agency arrangements between private bankers and corporations, a large amount of corporation money is deposited with these private bankers. Although the private bankers are not subject to supervision, yet in the opinion of J. P. Morgan and Company, the banking partnership whose members have unlimited liability for all of its debts, is a much safer depositary for corporate funds than a national bank or a trust company where a stockholder's liability is limited.

Spurred to action by the hearings before the Pujo Committee, Governor Sulzer, of New York, has presented a program of stock exchange reform to the New York Legislature whose leading provisions we outlined last month. These bills are arousing strong opposition; in particular the proposal to incorporate the Stock Exchange has been opposed. Mr. John G. Milburn, counsel for the New York Stock Exchange, at a hearing before the Senate and Assembly Judiciary and Codes Committee on the bills affecting Stock Exchange transactions, made the following statement which summarizes the objections to this legislation:

"This would be the most unfortunate piece of legislation that could be put on the state's books," declared Mr. Milburn. "It makes it a crime for a man to belong to an association and buy and sell securities if that association is not incorporated. You say that hereafter it shall be a crime for a man to do perfectly legitimate business to which he is entitled by membership in an association for which he paid his money.

"Your bill authorizes the New York Stock Exchange to do a banking business. It doesn't engage in that business, so this is a brand new authority to engage in the business of lending and borrowing money. I'm wondering who wants the exchanges to have that power. No well conducted exchange wants it.

"You want the superintendent of banks to approve all by-laws of the exchange. There's no grievance with respect to our by-laws so this is just another piece of radical legislation for which there is no call.

"Then you provide there shall be an examination by the superintendent of banks of all books of the Stock Exchange. The Stock Exchange has no business for which it should keep books. It buys and sells no stocks, has no money, has no business or orders to execute. I don't see what a superintendent of banks is to do when he goes down there. He can only find the books of indi-

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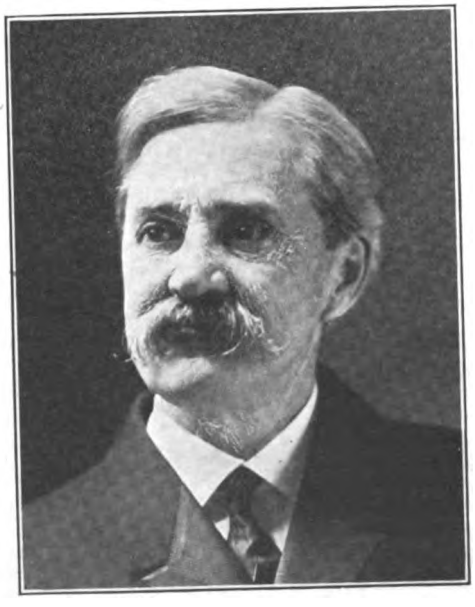
vidual brokers, but they are not the Stock Exchange.

"Now there's your bill to incorporate stock exchanges. You think that all will be white as driven snow after it goes into effect. If ever a mountain labored and brought forth a mouse so far as the correction of evil is concerned it is this bill."

Other speakers urged upon the committees the necessity of not affecting the open market of the exchange by attempting to regulate it through incorporation. They declared that the incorporation bill would not give the state any more supervision than is now enjoyed, while it would rob the board of goverors of the Exchange of the rigid disciplinary powers it possesses.

EFFORTS TO AMEND SHERMAN ANTI-TRUST LAW

It is understood that the Democratic leaders are not in sympathy with the proposal emanating from the Senate Committee on Interstate Commerce to amend the Sherman anti-trust law. This report which is mainly the work of Senator Cummins, recommends that the discretionary power which the Supreme Court now exercises in administering the Sherman law should be taken away from it, and that certain forms of illegal combination should be clearly defined so that business interests may understand what forms of combinations, agreements, contracts or pools are illegal. The report also favors the creation of a commission, similar in many respects to the Interstate Commerce Commission to administer the law.



SENATOR A. S. CUMMINS,

of Iowa, who recommends the amendment of the Sherman Anti-Trust Law.

A more intelligent view of the Sherman law is presented in a statement by former Attorney General Wickersham, made upon the eve of his retirement from office. In a comprehensive view of the subject he claims that the law, as at present constituted, is fully adequate to deal with all trust and monopolistic evils.

After referring to Senator Cummins's proposition to remove "the light of reason" from the Sherman anti-trust act and explaining how the Supreme Court injected that principle into the law, Mr. Wickersham says:

"Now the Senate committeemen who agree with Mr. Cummins, protest against giving a reasonable construction to the act and object to reposing in a court the power of determining whether or not any restraint of trade is due or undue.

"In criminal prosecution under the law the decision as to whether a restraint was undue or unreasonable would rest with the jury. In suits in equity the facts as well as the law must be decided by the court. Since the foundation of the jurisprudence which we have inherited from England such has been the case. Such will always be the case until the English language shall acquire a precision of meaning which it has never had and which the legislative use has never tended to improve.

"The vital principle of the Sherman anti-trust act is simply that every man shall be protected in his right to carry on commerce among the states and with foreign countries without being unfairly interfered with by other men or organizations of men. The interpretation of the Sherman anti-trust law for which Senator Cummins contends would entirely defeat its purpose.

"As interpreted by the Supreme Court, the statute has been held adequate to compel the breaking up of such monopolistic combinations as the Standard Oil, the tobacco and the powder and the great lakes towing combinations; such combinations of coal-carrying railroads formed to monopolize the traffic in and marketing of anthracite coal as those embraced in the recent case of United States versus Reading Railroad Company and others, recently decided by the Supreme Court, and the combination of railroad and bituminous coal companies in Ohio and West Virginia, recently condemned by the court in the sixth circuit; such combinations of competing manufacturers for the purpose of controlling prices and suppressing competition as those of the so-called bathtub trust, the Southern Wholesale Grocers' Association, the Eastern states lumber dealers, the kindling wood combination, the Pacific Coast Supply Dealers, the manufacturers of electric lamps and the window glass manufacturers in Ohio and Pennsylvania.

"It has been held adequate to reach 'corners' or combinations to acquire all or the dominant portion of a commodity with the purpose of withholding it from the market until it could be sold

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at an artificial price obtained by those in control of the corner.

"Not only have the equitable remedies by way of injunction and receivership been found adequate to break up conditions existing in violation of the law, but the efficacy of the statute as a criminal law in cases of wilful disregard of its prohibition, under circumstances showing moral turpitude, has been demonstrated in the conviction and sentencing to various terms of imprisonment of the officers of the National Cash Register Company.

"Judge Hollister characterized the verdict of guilty in that case as a vindication 'not only of the wisdom and efficiency of the Sherman anti-trust law as it is written, but it is a promise to every man, however small his means, that if he engages in any lawful business which carries his product into interstate commerce the Government of the United States will see to it that he is protected and that the public is protected against conspiracies against his trade and monopolies built upon its destruction.'

"Yet in the face of all this accomplishment Senators talk of amending the law so as to abolish 'the rule of reason' and take from the courts any discretion in construing and applying the law. It would be, indeed, a reign of unreason and madness if such counsels should prevail, and while Senators strive to abolish the rule of reason and thus deprive the courts of a jurisdiction inherent in civilized institutions, the House of Representatives adopts a clause prohibiting the expenditure of any of the funds appropriated for the enforcement of the anti-trust law in proceedings against any labor union—this, too, scarcely three months after the conviction of thirty-eight members of one of the largest and most powerful labor organizations, including its president and principal officers, of criminal conspiracy to violate the laws of the United States regulating in the interest of public safety the carriage of dynamite, nitroglycerin and other high explosives in interstate commerce.

"Yet a majority in the House of Representatives seems willing to put a premium upon crime committed by such an organization by prohibiting the expenditure for prosecution of demonstrated convicted violators of social order, if they are organized in pretended protection of the rights of one class of the community controlling a sufficiently large number of votes."

CESSATION OF HOSTILITIES IN NEW ENGLAND

Opposition to New England railroads is quieting down. The efforts of the leaders of public opinion, who have the interests of New England at heart, are bearing fruit and the past month has seen much less agitation against the railroads. A move in the right direction has been taken by the Boston Chamber of Commerce, which recently held a public hearing, at which "constructive" suggestions were asked, for the benefit of the railroad situation. The net result of the various addresses which were made at the sessions of this conference, was a general agreement that the New England states must put themselves in a position to fight for their commercial existence, and that unless the railroads are able to bring raw materials in at low cost, and depend largely upon the local business and the outward transportation of finished products to earn interest and dividends, New England must fall behind other sections.

Of concrete proposals there are few. It was, however, suggested that the Boston and Maine should be separated from the New Haven and Hartford, and operated under the control of the state. This far-fetched scheme is, however, recognized as impracticable. That New England business men are thoroughly aroused to the danger confronting their interests as a result of the crippling of the New Haven and Hartford and the Boston and Maine by the agitation, is, however, plainly apparent. Major Henry L. Higginson, of the banking firm of Lee, Higginson and Company, voiced the conservative opinion of Massachusetts at the Chamber of Commerce hearing as follows: "Is it the best way, when you want to deal with a man, to give him a kick and then say to him, now we will deal? Or is it better to say—You have done some good things, go ahead and do others. It is two years," declared Major Higginson, "since I asked any one to buy railroad securities, least of all would I touch the New Haven, because of the number of people who are out with a stick. It is the better policy for New England to help railroads."

The committee of the Massachusetts Legislature which is investigating the railroad problem, on March 5th, listened to a strong argument by Mr. William H. Coolidge, counsel for the New Haven, urging the abandonment of the policy of opposition which has been so long followed. Mr. Coolidge declared that the people of New England were, themselves, responsible for the inability of the New Haven management to make the necessary improvements in their facilities. At the time of its consolidation with the Boston and Maine, the New Haven and Hartford presented as its principal argument in favor of the merger, the promise to spend a large sum of money in improving the Boston and Maine's facilities which, it was admitted, were insufficient. From that day to this the politicians of New England have bent every effort to break up the consolidation or to hamper the New Haven's plans for the improvement of the Boston and Maine. In spite of this opposition, however,

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the New Haven has already spent more than $15,000,000 on the Boston and Maine, and is in the course of spending an equal amount. Mr. Coolidge sums up the situation as follows:

"Commission after commission has advised the Legislature as to constructive work which ought to be done. The railroads and their management have been ready to go ahead with this work as soon as the necessary legislation is obtained, but the railroad critics thus far have been able to prevent the work being done. The real sufferer is New England and not the railroad management.

"Investigations by commissions, state and interstate, grand juries, chambers of commerce and legislatures have taken the place of constructive legislation. Some time the people will be ready for constructive instead of destructive legislation; accomplishment instead of investigation; active improvement instead of criticism.

"The railroad directors and management are ready to proceed just as soon as the Legislature is ready. Already five or six years have been lost, with only a little done. We believe that private ownership under reasonable Government regulation is much better than public ownership of transportation business. We believe there is a much greater efficiency and economy in private than in public ownership. We believe that the manufacturing and business interests of New England demand that the attacks on New England's greatest industry shall stop and that business shall proceed.

"We cannot build tunnels without legislation; it is financial stupidity to electrify the Metropolitan district without knowing how the terminals in Boston are to be finally arranged. We are ready to help if the legislators are ready. We believe the substantial business interests of New England are unanimous in urging constructive rather than destructive legislation. You must decide whether you will take the advice of the railroad management or of the railroad critics."

A long general discussion followed. Members of the committee asked numerous questions about the willingness of the railroads to go ahead and Mr. Coolidge declared that it is essential to have the question determined first whether a tunnel is to be built under Boston to connect the two railroad terminals. Even if the Legislature decides against a tunnel, however, the roads will go ahead with the electrification propositions and four-tracking to which they are committed, but if they can do much more, will depend on which way that issue is determined. When pressed for a statement as to what the company will do if the Legislature decides that no tunnel shall be built, Mr. Coolidge replied rather emphatically that "somebody will decide sometime that there shall be such a tunnel."

Further, Mr. Coolidge argued that there is an awful waste of streets in Boston under existing arrangements when the distant suburbanites are carried in the streets. He said that the people who own the railroads own also the elevated and the street railway and they should co-ordinate all those service lines so that each may perform that part of the service for which it is best adapted.

SLOW PROGRESS IN UNITED STATES STEEL SUIT

The Government has concluded the taking of testimony in the suit against the United States Steel Corporation. The principal witness during the past month has been Mr. James Gayley, a former vice-president of the steel company. From this witness the Government attempted to show that the United States Steel Corporation had long profited on an organized rebate system on ore shipments as a result of which it gained a marked advantage over its competitors, and which tended to strengthen the alleged monopoly enjoyed by the corporation.

It is conceded that the Government has made out its case, so far as concerns the magnitude of the operations of the company and the important position which it occupies in the steel trade. Specific evidence of attempts to monopolize, however, such as was so abundant in the oil and tobacco suits, has been lacking. The evidence has, on the whole supported the contention of the directors and officers of the United States Steel Corporation that the company has always conducted its business with fairness, both to the competitor and the consumer. The formation of the corporation, however, undoubtedly united a number of companies which were formerly competitive with each other, and even in spite of specific acts looking toward monopolization, of which there are practically none, it is not unlikely that the Supreme Court may decide that this immense business organization, with its innumerable alliances and connections, is too large for safety, and must accordingly be broken up.

West Virginia Wins Rate Case.—The Federal Court at Charleston, West Virginia, has sustained the State in the Norfolk & Western two-cent rate case, which has been in that Court for several years. The railroad companies of the State had been charging over two cents a mile for passenger travel and gave rebate checks which were held for the face value in the event the final decision resulted against the defendant company.

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Contemporary Opinion

The Situation in New England.

JUDGED from recent editorials in certain New England dailies, the proposed panacea for the railway woes which have been afflicting that section of the country, namely, the disintegration of the system which has been developed under the Mellen regime, is not meeting with the approval hoped for. Not only has it developed that the destruction of this system may seriously affect New England's commercial and industrial position, but the recent rapid decline in the shares of the Boston and Maine stock, provide an object lesson of the financial struggle which this and other lines would be subjected to were they forced to engage in the more costly methods of operation brought about by independent management. Discussing the possible disintegration of the Boston and Maine system, the Boston "Transcript" has had the following to say:

"The sensational decline in Boston and Maine Railroad shares last week, with responsive depression on a few transactions among the shares of leased roads, has led to much talk, not only of passing of the Boston and Maine dividend, but of possible disintegration of the system. Many guaranteed stocks, representing vital parts of the great system, are affected. What would happen if leases were abandoned and various roads were returned to their stockholders? It is not easy to take up independent operation of properties after a long term of practical amalgamation. The needs of the public as well as the roads themselves under which the leases were made are multiplied tenfold in these newer days. Problems of commercial need, of railroad operation and management, of shareholders' interests are more pressing than were dreamed of in the days when the present Boston and Maine system was evolved. Segregation may be the puzzle of the day in the Harriman Pacific case, involving two successful properties. What would it be in the case of the numerous Boston and Maine leased lines when it is admitted that the lessee company is not successful?

"It may be that some revision of the terms of some leases may be suggested as a means of giving some relief from the burden under which the parent company is staggering, but that does not involve segregation or disruption of the system. It is a case of standing if united, of falling if divided—that would seem evident. No such violent effort at solution of the problem seems likely or necessary. Boston, New England, requires the Boston and Maine maintained as a system; the system requires broad consideration from the public served. A generous co-operation, a broad effort at uplift by all parties concerned, and the situation should clear enough to warrant belief in ultimate recovery of the system's standing."

Railway Valuation and Rates.

THERE appears to be a wide divergence of editorial opinion regarding the utility of a physical valuation of railways. Editors, who through experience and training, would appear equally able to discuss this undertaking with a proper regard for the value of the results to be obtained, are disclosing opinions diametrically opposed. Even among railway officials there is no uniformity of opinion, although it has been generally recognized for some time that such an undertaking by governmental authorities is inevitable. The New York *Journal of Commerce* is particularly caustic in its criticism and characterizes the whole procedure as a "ridiculous farce." It says:

"The man more responsible than any other for getting this absurb requirement through Congress is Senator La Follettee, of Wisconsin, and it is amazing that a majority of both parties in the last Congress should have been brought to its support. The only excuse for it is the contention that the Interstate Commerce Commission cannot determine what a reasonable railroad rate is without knowing the actual value of the railroad property. This is the height of absurdity, and it is certain that a reasonable rate cannot be determined by any such method as that proposed. Reasonable rates depend upon the cost and value of the service and not upon the cost of existing property or the cost of replacing it. They vary upon different lines and systems according to situation and circumstances and the efficency of management. On some they may mean a large return upon actual physical valuation and on others none at all.

"The value of any property in use, that for which it can be bought or sold now and upon which its owners are entitled to a return, depends upon many considerations besides what it originally cost or what it would cost to reproduce it, and this is more true of railroads than of factories or trading establishments. If a rule of the kind proposed should be applied it would throw into confusion the whole system of railroad traffic and shift lines of communication all over the country, leaving many of them in ruins. The cost of doing any kind of business has no fixed relation to the physical cost or value of the premises upon which and the appliances with which it is carried on, and reasonable prices for the goods produced or traded in can no more be determined by such value than a lawyer's service can be valued according to his office rent and the cost of his furniture and library. If this task of the Interstate Commerce Commission should be prosecuted for a series of years at great cost to the Government and the railroads, all paid for in the end by the people of the country, the result would be found to be utterly useless for the ostensible purpose. Congress ought to put a stop to the ridiculous farce."

The Firemen's Wage Controversy.

THE comparative lack of editorial support given to the Eastern firemen's arguments in their effort to procure an increase in wages, is surpising in view of the past attitude which has been manifested concerning such controversies. It indicates a growing appreciation on the part of the daily press of the rights of both the employer and the employe and also a fuller recognition of the fact that the demands of railway labor have now reached a point where their claims must be conclusively proven on the basis of a sound economic requirement, before they shall be entitled to more pay. As a leading New York daily puts it:

"Thus far, the argument of the firemen in the

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arbitration case is not very convincing. Two points have been forcibly made—the one that some investment in equipment and tools is necessary before the men begin work, the other that the hardships of the occupation are considerable. Both points appear to be well sustained, and should be given such weight as they deserve. Neither has much to do with the controversy. Nearly every occupation requires a preliminary investment of some kind, and it does not appear that the firemen are worse off in that regard than are those who follow other lines of employment. As for the hardships of the trade, they would be as great, no matter what wages were paid. The real question is financial, touching the ability of the roads to pay, and has not been dealt with as yet."

Results of the "Money Trust" Investigation.

THE investigation of the Pujo Committee of the so-called "Money Trust," seems to have fallen flat, if a large number of editorials from leading newspapers throughout the country, are to be taken as a criterion. The committee itself, while contending that the existence of a certain kind of "Money Trust" has been proven admits by inference that such a trust, as popularly conceived, does not exist. In commenting on the published statement of J. Pierpont Morgan and Company, which was recently submitted to the investigating committee and which carefully considers every point developed during the investigation, *Financial America*, has the following, in part, to say:

"This document is perhaps the clearest and withal the most temperate and dignified expression from a banking source by way of rebuke to those who hold false and misleading notions in regard to the concentration of money and credit in this country. If any document ever had a right to become historic, the Morgan letter is certainly that one. As a contribution to current economic literature it is potentially valuable. As a model of style, logic, analysis and persuasive eloquence it is unique. Relatively speaking, it is brief. That a subject so wide and far-reaching as the question of money and credit in this country—a question upon which the prevailing ignorance and misconception in the popular mind is positively astounding—could be so comprehensively and intelligently discussed in another triumph for the genius and resiliency of the house of Morgan.

"In language the most temperate this letter points out the mistake of the Pujo Committee in pursuing the theory that a few men control money and credit in this country—a thesis impossible of demonstration owing to the operation of economic laws ever since the beginning of barter and trade when civilization was in its primitive stage. The financial ills which periodically affect this country were shown to arise from an outworn banking system and not from the schemes of men. And the remedy pointed out by the Morgan letter will commend itself to every thoughtful citizen. There was a careful diagnosis of our whole banking system, together with a study of the successful systems of other countries, by the several committees in Congress entrusted with the subject of currency and banking, to the single end of wise and comprehensive—as contrasted with piecemeal—legislation.

"In regard to the elaborate tables of so-called interlocking directorates furnished by the statisticians employed by the Pujo Committee, the letter makes emphatic protest. The implication that 180 bankers and bank directors serving upon corporate boards with resources aggregating $25,000,000,000, absolutely control this huge total is shown to rest wholly upon a false assumption. Living in different parts of the country, personally unacquainted with each other in many cases and associated only in occasional transactions, that they should always vote for the same policy and control with united purpose the directorates of more than 130 corporations is absolutely untenable. The testimony, says the letter, failed to establish any concerted policy or harmony of action binding these 180 men together, and as a matter of fact no such policy exists.

"On the question of decentralization of banking power in this country the letter is equally explicit. It is shown that the country outside of New York is far outstripping that money centre. The banking resources of New York City banks now represent only 18.9 per cent of the country's banking resources, whereas, in 1900 they represented 23.2 per cent."

Public Ownership.

AS the results of a more extended inquiry into public ownership in various foreign countries are available, it becomes apparent that such experiments in the majority of instances, have proven anything but satisfactory, and in several countries, conditions have become so objectionable that a return to private ownership may be expected if the will of the people is carried out. This is particularly true with regard to experiments along these lines in France where railway operations under government ownership have assumed the form of a national scandal. The New York *Journal of Commerce*, in discussing editorially the conclusions recently reached by the well known French economist, Paul Leroy-Beaulieu, after calling attention to the fact that France's experiment with Government railways began in 1875 with the acquisition of certain bankrupt lines in western France, has the following to say:

"These were welded together and linked up with a system extending from Paris to Bordeaux and Nantes. The running of this proved 'very expensive,' and the 'net revenues do not represent two per cent on the invested capital,' while it has had some terrible accidents of late, costing the lives of scores of passengers,' the latest 'due to the bad condition of a bridge over the Loire.' As late as 1908 this small system was developed by taking over the Western Company which controlled roads in several departments, and starting at Paris has as termini the seaports of Havre, Cherbourg, Brest and Nantes. This scheme was adopted against much opposition when the radicals were in power and Clemenceau was at the head of the cabinet. The State management, M. Leroy-Beaulieu declares, 'has been and continues to be a great financial and technical disappointment.' For the first two years 'the trains were never on time and the worst possible accidents were continually happening, whereas under the old management not a single passenger had been killed in ten years.' There has been improvement on the technical side, but the financial results 'could not be much worse than they are and are a great load on the State treasury.' This trial of State

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ownership, the writer says, 'is directly against that system and consequently public opinion is completely opposed thereto.'"

Electrification on the Pennsylvania Railroad.

THE official announcement made by the Pennsylvania Railroad to the effect that it is about to electrify the Main Line tracks for local traffic from Broad Street station, Philadelphia, to Paoli, has been widely published and commented upon by the daily press who see in it the entering wedge for the eventual electrification of the entire system. In discussing the significance of this action, the Philadelphia *Press* has the following, editorially, to say:

"This is definite and positive and as the Pennsylvania Railroad does not loiter over work once decided upon a beginning of the electrification of the Philadelphia terminus of this great aggregation of roads may be looked forward to with confidence. It is estimated that time will be saved in the passage of trains by the adoption of electricity, but the removal of so many locomotives with their noise and smoke from the city limits will be the chief advantage to the city. That change would be of inestimable value were it not for the vast number of soft coal burning locomotives that will still remain after the trains to Paoli have all been placed under electricity.

"But this good work once begun will not stop. The Philadelphia terminals will ultimately be as free from coal burning locomotives as are those of New York at the present time. The change is bound to come and the great thing for the present generation is to see a beginning made. This is now in immediate prospect. It will go, as we understand, hand in hand with the enlargement of Broad Street Station and the addition of trackage leading out of it on the side towards Arch street. The unresting growth of the Pennsylvania Railroad tends in a short time to outstrip its trackage and stations, but the improvements now in contemplation that are intended to be good for twenty years ought to give most satisfying results and demonstrate the powers of the company's engineers for forecasting the future."

The Commerce Court Question.

THERE appears to be a growing belief that the new Administration may deal more leniently with the Commerce Court than was anticipated, and that its tenure of office may be indefinitely extended. It is known that the Interstate Commerce Commission is in favor of its continuance and that prominent judges, lawyers and shippers are coming to its support. Such pressure is likely to have its effect and it would not be surprising if some measure was adopted authorizing its continuance, though perhaps in a modified form. While it is possible that Congress may make a special appropriation for the next fiscal year, and then leave the court undisturbed, there appears to prevail an opinion, in some quarters, that a change will be provided in its personnel and its jurisdiction.

Discussing the possibility of the abolition of the Commerce Court, a lawyer who has had years of experience in Interstate Commerce Commission practice, says to *The Wall Street Journal*:

"The subject of interstate commerce law and traffic adjustments is one of such intricacy and endless ramification that it is impossible to become grounded in it, save by experience. Under the old system of trying interstate commerce cases in federal courts throughout the country, the judge was usually at a disadvantage because he knew so little of the subject and had his attention directed to it so infrequently. The lawyer who prepared his case the best and presented it most clearly wielded the greatest influence.

"The Commerce Court, with the exception of one of its members, had not had previous interstate commerce experience at the time the court was established, but its members upon assuming their duties, at once embarked upon a most valuable and systematic training, which, if continued, will render them experts.

"If the Commerce Court be abolished, the duties now devolved upon it will necessarily have to be performed by the United States federal courts. Under the old system in effect prior to the creation of the Commerce Court it frequently happened that in cases involving complaints on the part of one city or town against another, the judge who was to try the case resided either in the city or town complaining or in the one against which complaint was made, or else was a resident of a State whose principal towns or whose principal industries might be involved in a case before him. It was, in fact, impossible to avoid this result. It must be apparent that any unconscious bias to which the courts were subjected by reason of this condition has been effectually removed by the establishment of a special court, composed of five men appointed from widely remote parts of the country, and residing in Washington, D. C.

"The criticisms directed against the Commerce Court have tended to create a general impression that the court is antagonistic to the Commission and is in the habit of acting arbitrarily and capriciously. Nothing could be farther from the truth.

"Attorneys for the Commission and the Government who appear in the Commerce Court seeking to have the orders of the Commission enforced, or prevent thei renfrocement being restrained, become as partisan as the attorneys for the railroads who are resisting such orders or seeking such restraining orders or injunctions. The ends of justice are therefore best subserved by trying the cases before a tribunal which possesses as much technical knowledge as either of the contending parties. The lack of such general technical knowledge is necessarily a disadvantage, especially as the court is one in which traffic experts frequently testify orally.

"The agitation for abolishment of the Commerce Court had its inception so early after its creation that the United States Supreme Court had had no opportunity to review all its principal decisions. It is therefore uncertain how far the Supreme Court will sustain the Commerce Court. Suppose it should result that the Supreme Court, upon the leading legal propositions involved, should uphold the Commerce Court. Would not those members of the Congress who are severely criticising the work of the Commerce Court be in a rather embarrassing position?

"It is impossible for the Commerce Court to do any great harm, for whatever may be said of its legal conclusions, its work has been done intelligently and has resulted in placing before the Supreme Court clearly and lucidly the legal propositions involved in each particular case.

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The Railroads' Position Concerning Regulation

NOTE: At the public hearing at Harrisburg before the Legislative Committees having in charge the Public Utilities Bill now pending in the Pennsylvania Legislature, Mr. George Stuart Patterson, general solicitor of the Pennsylvania Railroad, appeared last month on behalf of the steam railroads of Pennsylvania. The following is an abstract of his argument.

GEORGE STUART PATTERSON,
General Solicitor, Pennsylvania Railroad.

THE position of the railroads is that:—

1. The bill should endow the Commission with power to secure reasonable rates and facilities. Nothing in the law, however, should contravene the well known statement of the United States Supreme Court that "the public is in no sense a *general manager*."

The function of management should be left to the railroads themselves. To illustrate: The Commission should have power to insist that equipment be safe and to pass, if necessary, upon the adequacy of the provision made for safety. It should not, however, be empowered to specify the means by which such safety should be secured.

2. The bill should be clear in its meaning, and its language should in general be the same as that of other similar measures which have already received judicial interpretation. In such manner will the railroads understand the precise purport of their obligations.

3. Above all, the bill must be fair to invested capital. It is comparatively easy to force prosperous companies to submit to any burdens which may be imposed up to the point of actual confiscation.

No way has yet been devised, however, by which a man, or set of men, can be forced to embark upon a new enterprise involving the investment of their money unless there is a reasonable probability of profit from the transaction. Capital is volatile. Create unfavorable atmospheric conditions and it vanishes. It knows no national boundary lines. It seeks unceasingly to find a *habitat* where it will be welcomed and encouraged.

Now, through the development of its resources by private capital, the Commonwealth of Pennsylvania has become the premier industrial State in the Union. Railroads and manufactures have here prospered. But it is perfectly obvious that if we impose undue burdens, if we restrict the prerogatives of management, if we penalize efficiency, and make it evident that this State will not allow those who risk their capital here to enjoy the fruits of initiative, enterprise, and industry—no new railroads will be built, and those which exist will make no improvements involving the slightest risk.

In other words, an impasse will develop through the refusal of private capital further to engage in developing our resources, and the public itself through the Government will be forced to embark upon the perilous course of building and managing public utilities.

WHAT GOVERNMENT OWNERSHIP MEANS.

If Government ownership is our goal, we must consider carefully the experience the world has had with Government management. In general, it may be said that no country has as yet undertaken Government railway ownership as a policy deliberately chosen upon economic grounds. Special and local considerations have determined the choice in practically every case.

The most recent instance of this character is that of the Western Railway in France, acquired by the Nation in 1909. In 1909 that company's deficit was $7,750,000; in 1910, $11,700,000; in 1911, $14,000,000; in 1912, $16,000,000; and for 1913, the budget estimates that the people must be taxed $18,000,000 to provide the deficit in railway operation.

In this connection note comment upon the French Government Railway in a letter from the Hon. Evelyn Cecil, M. P., published in *The London Times* June 8, 1912:

"Its enormously enhanced deficit, its greater inefficiency of operation and the insubordination of its staff since it had been taken over by the State, are now notorious. These disastrous results were preceded by a large increase in the number of employes, which has in no way been justified. Under State management, the discipline necessary to the best administration, is disregarded by employes, who are mostly electors, while the pressure brought upon a squeezable Minister to raise wages is highly detrimental to public interest.

Pierre Leroy Beaulieu, a well known French economist, says in *L'Economiste Francaise* of December 30, 1911:

"We see all the inherent faults of State administration in this affair; the abuses of formality and red tape, favoritism, delay, instability, resulting lack of *esprit de corps*, no fixing of responsibility, indifference to financial results."

AMERICAN RAILWAYS BEST IN THE WORLD.

Broadly speaking, the United States has the most efficient railway system of any country in the world. It carries freight cheaper and pro-

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vides a more satisfactory service to the public than any country in the world.

We do our work upon less capital. The railroad capitalization per mile of road of the principal nations of the world is as follows:

United Kingdom (1911)	$275,156
France (1910)	144,683
Prussia-Hesse (1910)	112,427
United States (1910)	62,657

We do more work upon our capital. This is shown in these figures giving ton miles hauled per mile of line by the leading companies. (England not being given because such figures are not compiled there.)

France	496,939
Germany	827,400
United States	1,071,086

American Railway Wages.

We pay our railway labor better than any country in the world. The following table shows the average daily compensation of railway employes:

United States	$2.23
United Kingdom	1.35
Austria	.89
Prussia-Hesse	.81

The English Board of Trade's official reports show our cost of living (based on the cost of the standard consumption of a typical workman's family) as being 38.0 per cent higher than in the United Kingdom, yet in pay our railway labor receives 60 per cent better wages.

The cost of living in the United States is 17.8 per cent higher than in Germany, yet we pay our railway labor nearly three times as much as is paid in Germany, under government ownership.

American Railway Taxes.

Our railways pay more to the support of the government in the form of taxation proportioned to the capital invested than is paid in any other country in the world.

The railways of the United Kingdom, capitalized at $275,000, paid $1,121 per mile of line in taxes in 1911, while the railways of the United States, capitalized at $62,000 paid $431 per mile of line in 1910. In other words, Great Britain's railways, with a caiptal per mile 4.44 times greater than that of the United States, paid taxes of only 2.6 times as great. *Our taxes were relatively twice as high.*

American Railway Service.

Notwithstanding all of these extra burdens, higher wages, and additional efficiency, the railroads of the United States do their work cheaper than any railroads in the world, as will be indicated by the following table (England not included, since her railways do not compile ton-mile statistics.)

Average Rates for Hauling Each Ton of Freight One Mile.

Year	France (cents)	Prussia-Hesse (cents)	United States (cents)	Group II* (cents)
1900	1.322	1.2474	0.729	0.613
1901	1.327	1.2578	0.750	0.646
1902	1.327	1.2543	0.757	0.664
1903	1.305	1.2543	0.763	0.667
1904	1.296	1.2613	0.780	0.686
1905	1.274	1.2578	0.766	0.665
1906	1.276	1.2543	0.748	0.650
1907	1.231	1.2509	0.759	0.655
1908	1.209	2.2578	0.754	0.643
1909	1.200	1.2509	0.763	0.647
1910	1.203	1.2474	0.753	0.641

*(Pennsylvania, New York, New Jersey, Delaware, Maryland.)

Passenger rates per mile are not given because the low-class rates charged in Europe have no counterpart in this country. First class rates in Europe are generally charged at about 4 cents (American money) per mile: second class, at 2½ cents, and lower classes still cheaper. For the same character of service, the passenger rates in this country are admittedly less than in Europe.

The Necessity for New Capital.

(a) Roughly speaking, the railway tonnage of this country doubles every 10 or 12 years, passenger traffic every 14 or 15 years.

(b) There is necessity for increased terminals, classification yards, tracks, equipment and motive power.

(c) There is the necessity for the expenditure of large amounts out of earnings ($140,000,000 for the Pennsylvania Railroad alone in the next ten years) in non-income producing improvements, such as, elimination of grade crossings, electrification, strengthening of bridges, steel cars, passenger equipment.

(d) In the first seven months of 1912, operating revenues increased 3.3 per cent per mile, operating expenses (exclusive of taxes) increased 4.9 per cent, and net operating revenue decreased .5 of 1 per cent.

(e) Taxes on the Pennsylvania Railroad Lines East of Pittsburgh increased from $3,672,000 in 1903, to $8,597,387 in 1912.

(f) In last ten years the Pennsylvania Lines East have expended $18,000,000 in passenger cars; $99,500,000 in freight cars and $42,400,000 in locomotives.

(g) In last twelve years the Pennsylvania Lines East have expended $188,737,592 in State of Pennsylvania, of which $20,850,000 has been in the elimination of grade crossings.

(h) In last six years, Congressional and State regulation, with reference to hours of labor, safety appliances, standardization of equipment, extra crew laws have cost the Pennsylvania Lines East $11,000,000.

(i) During the ten years (1901 to 1911) there has been an increase in the operating ratio of the Pennsylvania Railroad from 68.68 per cent to 78.88 per cent.

(j) During that same period there has been an increase in wages paid to labor amounting to 37 per cent.

(k) During this same period there has been a decrease in the return upon the money actually

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invested in the Pennsylvania Railroad property from 6.54 per cent to 4.18 per cent.

It must be obvious to any one that this narrowing of the margin between income and outgo cannot continue much longer, if this and other railroads are to be in a position properly to perform their duty to the public.

Public regulation, then, of public utilities should seek to give every encouragement to private capital while taking all necessary steps to protect public interests. In this connection the quotation from a speech by Commissioner Prouty of the Interstate Commerce Commission on November 19, 1912, is worth quoting and considering:

"The United States is trying an experiment which never has been successfully worked out yet in the history of the world. It is trying to build, develop and operate its railroads by private capital under rates and regulations fixed not by the owners of that capital but by the public."

"Having Eyes That See"

By HOWARD ELLIOTT,

GENERAL MANAGER'S OFFICE, SALT LAKE ROUTE.

HOWARD ELLIOTT,
General Manager's Office, Salt Lake Route.

I MOVE the adoption of the following resolutions:

That, whereas, the railroads of the United States are now confronted with a serious shortage of net revenue, and

Whereas, the increased authority of national and state commissions has narrowed the field through which economies may be practiced until virtually the only flexible method is left by increasing the capacity of the individual employes, and

Whereas, the tendency against over-specialization is both logical and natural: and

Whereas, the "most important part of everything is the beginning" and that, while the specialist may be needed to apply the remedy, any average individual can see the disease;

Now, therefore, be it resolved, by each employe of every railroad in the United States, that he appoint himself a committee of one who, "having eyes that see," will observe what is going on about him, report improper conditions, make suggestions as to improving the service, and in every other way consider the railroad business in the same way that he regards his private affairs, to the end that the roads may be saved from bankruptcy, the country better served, and the stockholders properly recompensed.

The good Samaritan would have made a good railroad man. He had "eyes that see" and he used them. He saw a dangerous condition and he remedied it. If he had stopped to ask himself, "Is this a matter that comes within my department?" he would probably have done just as the priest and the Levite did before him, and passed by on the other side; the man who fell among thieves would have perished, and the world might yet have been waiting for an abiding illustration of "who is my neighbor."

The priest and the Levite are symbolic of the railroad man of the past, the man whose perspective of life is restricted to his "prescribed" duties. The Samaritan is a type of the railroad man of the future, the man who considers the railroad business in the same light that he regards his own, and who thinks it his duty to do anything which will produce dividends for the road, whether it lies strictly within the scope of his employment or not.

Those of us who follow the trend of affairs in the railway field cannot fail to notice certain well defined forces at work. For instance, there is the safety movement, which has for its purpose the reduction of accidents and the amounts paid out for personal injury claims. With the slogan "Safety first" many roads have organized safety committees, lectures have been given, moving pictures displayed, literature distributed, and other steps taken to create in the minds of officers and employes the necessity of "having eyes that see" and of using the utmost care and caution, primarily to avoid the suffering and hardship which inevitably follow in the wake of personal injuries, and secondarily to reduce the enormous amounts continually paid out in consequence thereof.

Closely akin to this movement is that designated as "stopping the freight claim leak." One road has appointed an assistant general manager who gives especial attention to this work. On that line the handling of O. S. and D. reports and claims for loss and damage have been transferred to the operating department. A salutary reduction in claims and claim payments has been made and a system devised whereby all the information necessary to settle a large portion of the claims is in possession of that department at the time the claim is received. Other roads have put on transportation inspectors whose initial purpose is to inquire into and report on conditions which cause

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claims and to remove so far as possible those causes. Still other roads are treating the same question in different ways.

Then there is the saving habit. One road issued a short time ago a schedule showing in terms of ton miles the expense caused every time a postage stamp is wasted, or a broom or a lantern and other articles usually considered of minor importance. The figures were astounding. One road has adopted the slogan "Save a nickel a day," another "Save a penny a day," and other lines by other means are attempting to inculcate principles of economy in the minds of all.

A campaign of courtesy has also been started. There was published on one road recently a very excellent circular to impress upon agents and others the fact that courtesy costs nothing, but yields large returns in the way of friends for the road. This circular was copied by other roads, which instituted like campaigns. One road has, I understand, appointed an inspector of courtesy, who devotes his entire time to instructing employes how to be courteous and to have manners that please.

There are a number of other movements, such as the establishing of employes' magazines, as means of imparting information to the rank and file as to what is going on, attracting their attention to their own possibilities and developing a spirit of loyalty; the founding of bureaus of economics to compile data with which to contest unsound economic theories; the instituting of a policy of publicity regarding railway affairs, which proceeds on the assumption that suppression of the facts is a wrong and is resented by the public; and the formation of traffic associations composed of both railroad men and shippers, whose object is to minimize their differences and magnify their common interest.

All of these movements were started with the object of developing and increasing efficiency, and the noteworthy fact about it is that the instructions covering all of these matters urged employes to look about them and make suggestions whether it directly concerned their department or not.

But there is one movement that stands head and shoulders above all the rest. Indeed, in a sense, it includes all the rest. Compared to the others, it is as substance to form. It is as much more important than the others as the spirit of the law is of more consequence than the letter. I refer to the pronounced tendency against overspecialization and overcentralization of authority. The trend of the times nowadays is distinctly in the direction of decentralization. Many roads are making the division the unit instead of the department. A broadening of the vision of men follows as the night the day. There is no disputing the fact that this tendency exists, and is finding expression in one form or another every day on some railroad. The only point of argument is whether or not it is a step in the right direction.

Now it is not my purpose to describe the unit system of organization. My friend Major Hine of the Harriman line has done that most admirably. As a pioneer he advocated some startling innovations which have aroused much discussion, but which are being rapidly adopted, once their real import is comprehended. When the safety committee idea was first broached, a good many members of the old school referred to it as a huge joke. How different now! There is nothing so painful to the average mind as a new idea, yet even the "mossbacks" must admit that new conditions demand new methods of treatment, and who will deny that railroading nowadays is far different from what it used to be?

It has been but a few years since lower rates were accorded patrons who shipped in trainloads over those who shipped in carloads. No one thought of questioning the right to do it. Only a short time has passed since railroad managers were the judges of who were entitled to ride free. Even young men in the business may remember when cars were held without demurrage as long as the shipper desired. It has been only within the last five years that a railroad could not protect a rate quoted in error but in good faith. In 1907 the sixteen-hour law became effective, prior to which time an appeal to the loyalty of men was sufficient to cause them to get their trains into terminals, even though they had met with extraordinary delays. Only within the last three years have we heard much about "full-crew bills." In short, the law of "supply and demand" so far as it relates to railroads, has been repealed in many of its essential features within the last decade. The situation has changed and methods of organization and operation must likewise be changed to meet the new conditions.

The opposition to the theory that a man in one department may possibly have an idea that is valuable with regard to some other department is founded either in prejudice or ignorance. The prejudice is begotten of ignorance, but rapidly subsides under a system of enlightenment. I maintain that the theory of broadening men is entirely logical and practical, and that their efficiency is increased to the extent that their vision of departmental boundaries is dimmed. But disregarding the question of whether efficiency is promoted by going outside of one's department, this is at least true, that for every instance where the specialist is indispensable, there are ten instances where any man of common sense will do, and that even if it is necessary to call the specialist to apply the remedy, it doesn't always require his presence to discover the disease, and the discovery is of prime importance.

Let us take this case, to get down to "brass tacks." A traveling freight agent, walking down the track, discovers a broken rail. Knowing that he alone possesses the information, he says nothing about it to any one and an oncoming train plunges to its destruction. Now reporting rail failures is not one of the "prescribed" duties of a traveling freight agent, yet is there a man among us who would not say that the traveling freight agent was guilty of criminal carelessness and gross negligence? But negligence is defined as "the inadvertent failure to perform a non-contractual duty," and if there was no duty there was no negligence. If there was negligence—and we are agreed that there was—then there must have been a duty. It follows then that there may be duties which are not "prescribed," and right there we find the "rub." I say it is a railroad man's duty to do anything which will further the interests of the railroad, and there is not nearly so much danger in encouraging this idea as there is in following the time-worn advice, "Stick to your knitting." If the traveling freight agent had done that when he found the defective rail, what would have been the result? Could he have justified his failure to report the defect on the ground that he was not a track man and could not re-

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place the broken rail with a sound one? Does his act lose any of its value because it came from one whose principal business was not that of rail mending? And could the roadmaster take offense because the suggestion came from outside the department of maintenance?

I say we need a change of heart if we harbor such ideas. But, says one, do you mean that if a clerk in the auditor's office discovers an intoxicated engineer on his run, that he should report it? I most assuredly do. Such a case may be fraught with graver danger than the broken rail case. Do you mean that a civil engineer should solicit business? Exactly, and some roads are now publishing the names of every one outside the traffic department who secures passengers or freight shipments. Yet solicitation is not one of the prescribed duties of a civil engineer. Do you mean that a section laborer who sees cars on a blind siding unnecessarily delayed, should report it? I do, for maybe he's the only one that knows about it. His pay comes from the same source as the car accountant's. Why should he stand back on ceremony and decline to do things merely because he won't be censured if he doesn't? Do you mean to obliterate departmental lines entirely? Yes, if their maintenance demands that every one else keep hands off and not be concerned with the success of the property as a whole.

Another thing. No man lives who can place his finger upon a single feature of railroad operation which does not concern more than one department. Sitting around a general manager's desk to-day you will find besides the general manager, the general superintendent, the superintendent of motive power and the chief engineer, discussing the advisability of purchasing some Mallet engines. Now if there is any one feature of operation that suggests its own allocation, it is an engine, which every one knows belongs to the mechanical department. Why then is it necessary to go farther than the superintendent of motive power for a recommendation as to the purchase of locomotives? Because when you consider the increased tractive effort, you are looking at it from the standpoint of moving tonnage in larger train units, and this is something that directly concerns the general superintendent and the superintendent of transportation. But during the discussion it develops that to employ this larger power will mean heavier rail, better ballast, stronger bridges. Does it not then become an engineering matter?

But mark you, out of those four officials, there is only one with the proper attitude. The head of the motive power department looks at it only through mechanical eyes. The general superintendent naturally disregards factors which cannot be expressed in "ton miles." The chief engineer pictures only the physical characteristics involved. Not only is there but one man with the right attitude, there is only one man who is in position to say whether or not the purchase of such an engine is true economy. He is the general manager. But the general manager was not always general manager. He came from the ranks. Can any one argue that a general manager can highly specialize up to the day of his appointment and then in an instant of time blossom out into a full fledged executive officer with a "discussable" working knowledge of all the other departments? Such a proposition is untenable. Then at what point in the career of railroad men should the broadening process commence? I say it should begin the moment he takes service with the railroad. He should be taught to "have eyes that see" not only his own particular activities but those of other departments as well, in order that he may develop the proper perspective and fit himself for those positions where they speak of "our road" and not "my department." When we can grasp the force of this idea, at that psychological moment departmental lines will vanish.

When the Titanic went to her watery grave a few months ago, to the world's amazement, it was found that many of the seamen could not row. Seamanship had become such a highly specialized calling that it was thought unnecessary for employes of steamships to know how to handle a rowboat. If those two railroad officials who lost their lives in that catastrophe could speak to-day is there a particle of doubt in your mind and mine what they would say about the dangers of over-specializing?

This tendency to destroy sectional lines is one of the most encouraging signs of the times. It promotes loyalty, it generates the "team-work" spirit, it creates an esprit de corps, it enables employes to tell what is true economy, and if followed to its logical conclusion it will produce dividends, for which purpose and the serving of the public, railroads were established.

Restrictive Legislation.

IN a recent address at the annual dinner of the Railroad Men's Improvement Society of New York, G. N. Orcutt, assistant to the president of the Erie Railroad, stated that while the railroads of the United States were performing an incalculable service to the country, they were constantly being subjected to unfair and discriminatory legislation. In discussing the terminal situation at New York, Mr. Orcutt said:

"The railroads entering New York, by way of New Jersey, did not approve of the recent plans advocated by the city relative to terminals along the North River, because they are obviously unfair. We were courteously invited to co-operate with the city in the matter, but the co-operation turned out to be that of the lion and the lamb."

In reply to a statement of John Purroy Mitchel, president of the Board of Aldermen, who spoke before Mr. Orcutt, that "the day is coming when the North River water front must be taken over for maritime purposes," Mr. Orcutt said:

"During the last year the railroads brought 43,000,000 tons of freight into New York, as against 31,000,000 tons brought in by the combined steamship companies. This fact seems to be overlooked. Yet it presents a striking instance where justice ought to be accorded the railroads."

"Congress has dealt most unfairly with the railroads," he continued, "in the laws regulating the postal service. By the introduction of the parcel post the Postoffice Department has greatly increased its profits, while the railroads, which alone make these profits possible, have not been adequately repaid for the extra service."

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What Regulation Taught One Regulator

By HON. JOHN B. OLMSTED.

PUBLIC SERVICE COMMISSIONER OF NEW YORK STATE IN CONNECTION WITH HIS RETIREMENT FROM THAT OFFICE, WHICH HE ENTERED WITH AN ANTI-CORPORATION VIEW.

I CAME into office with decided leanings towards the anti-corporation view of public utility questions. Some of my good friends among the corporation lawyers in Buffalo were kind enough to say that I was too much of an anarchist to be of much use as a commissioner. Want of knowledge as to the precise point involved I have found in many cases to be the principal cause of the prejudices I then entertained. Experience has taught me that there is another side to these questions, and one not lightly to be dismissed.

For instance, I held the view, as I imagine many another person holds the view, that the New York Central Railroad is grossly over-capitalized, and is paying dividends on a large amount of what is popularly known as water. When it came to my knowledge as a part of the evidence of a long investigation in the Buffalo, Rochester and Eastern case that the estimated cost of that company's 300 miles of railroad from Troy to Buffalo, planned without adequate allowances for terminal yards and facilities at either end, and touching but one or two large centers of population, was approximately one hundred millions of dollars, I came to the view that the New York Central, with its four tracks running through the heart of so many great cities of the State, with all the attendant advantages to freight and passenger business, and with approximately 500 miles more trackage, including the vast and valuable terminal facilities of New York City, might possibly on a valuation measure up to a capitalization of five times that of the Buffalo, Rochester and Eastern.

MANAGERS CONCILIATORY.

I have changed my mind also as to the attitude of most corporation managers towards the public. I had expected to find it recalcitrant and objurgatory, which is a Latinized and "more tenderer" way of saying that it was made up of kicks and damns. I have found it almost uniformly, when expressed in the presence of the Commission, conciliating and willing to abide by the results of a fair hearing. The difficulty with me has been not so much in getting the corporations to do what I thought was right as to determine in my own mind what under all the circumstances of certain cases was right.

I am fully aware that this is not the popular view of public service corporations, nor do I wish to be understood as having discovered wings on the shoulders of the managers thereof. I say that a better knowledge of the conditions under which their business is carried on brings one to a more just appreciation of some of the difficulties under which they labor. I know well that there are many—very many— particulars in which the service which they are rendering may be improved, as I know well that there are very many particulars in which the business of every man in this room might be improved if an inquiry into it were started by a commission armed with power.

HONORABLE JOHN B. OLMSTED.

Such a commission would be at once met with the objection that its suggestions required too much of an outlay to carry them out, and would be asked how it proposed to provide the funds for the improvements recommended. Let us be reasonable as well as critical. Let us realize that the management of one thousand men on a street car line is no less difficult than the management of an equal number in a factory, and that there are times when you have to do the best you can with the material with which you have to work.

"STRAIGHT" STREET MORE POPULAR.

I believe that in the past ten years a great change has come over the minds of men who are in the management of public utilities. There are still some left who cling to the old "public-be-damned" idea, but they are fast being supplanted, and the up-to-date railway or electric light official stands ready to listen to any reasonable complaint that may be brought to his attention, and, what is more to the point, to turn a deaf ear to proposals which call for abhorrent and forbidden methods in their accomplishment. I am not innocent enough to believe that all the dark, devious and easy ways of "getting there" have been wholly abandoned; but I do hold the view that the street called "Straight" is a much more popular thoroughfare than it used to be, and that the directors and agents of the corporations over which we have control are walking it with much cleaner consciences and with great gain to their self-respect.

RISKS OF INVESTMENT.

I have intimated that one great difficulty with certain corporations is the lack of means to carry

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out the improvements to service which their operating men admit would be advisable and desirable. On this point some figures from our last annual report may be illuminating. Out of 78 steam railroads reporting to the Commission in this State, only 27 paid any dividends for the current year. Out of 364 electric railroads, light, heat and power, and gas corporations, 237 paid no dividends. In 1909 it was 237 out of 310, so that conditions are improving some; but the figures are significant. They are contradictory to the general impression that dividends are the foundation upon which all public service corporations are erected, and they have a sobering effect upon an official who starts in with the idea of building Rome—or even Schenectady—in a day.

The consideration of them has not swayed the mind of the Commission where conditions have become intolerable or even irritating; but they have at times prevented the attainment of ends which otherwise might have been ordered.

I know that these views are not wholly popular, and I know that in certain quarters the idea prevails that a public service commissioner should be pictured with a knot of thongs to lash the sides of all the hated corporations, irrespective of their merits or deserts. In my view that savors too much of "Donnybrook Fair." I like the expression of President Taft, who quietly reminded his hearers on one occasion, as I recollect it, that the phrase "all the people" means just what it says, and that "all the people" included also the corporations, which are made up of people just as much as a municipality is.

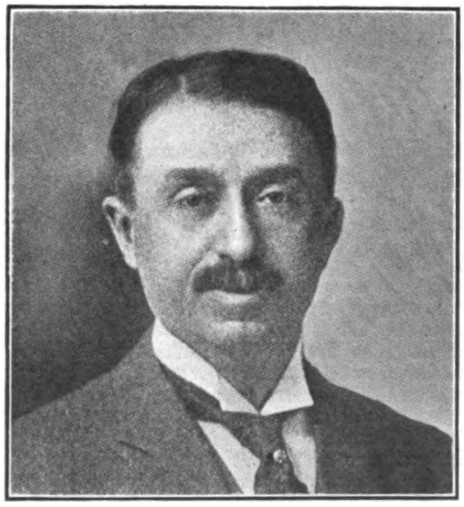
Even-Handed Justice.

The Public Service Commission is organized to hand out justice as near as it can determine it, both to shippers and to carriers, to consumers and to producers, and if it has attained some success in its work of the last five years, it has done so by strict adherence to that view, and not by spectacular brandishings of the "big stick." It has accomplished more good by getting both parties before it, pointing out the strength or weakness of opposing views, and then appealing to that sense of fair play which is inherent in every man, than it ever has by a display of the tremendous powers which the law undoubtedly confers upon it.

A Trip to The Panama Canal

By FRANK TRUMBULL.

Note:—In a most delightful manner, Mr. Trumbull records some of the impressions received during his recent trip to the Panama Canal. In his memorandum, railroad officials will find material of a highly entertaining character, particularly in the consideration given the human element in the construction of the Panama Canal as compared with its influence in general railway construction and development.



Frank Trumbull.

THE things that interested me most were the human, not the physical features of the work and I am glad on that account that we had six days instead of only two in the Canal Zone. I leave to others a description of the number of cubic yards of excavation, the number of barrels of cement, the bust measure of the locks and the canal, and all those corpulent and really imposing things. You can see steam shovels at home; there are simply a hundred of them there, masticating perfectly good landscapes, and some of the landscapes, particularly near Panama, are charming.

The services of our civilians (railroad men, by the way), who initiated our work, are very cordially commended on the Isthmus. After getting the work started the transfer of it to the Army, was no doubt a good move, because it has given stability to the whole affair; the organization and discipline are splendid. This illustrates the value of appointments for life in the Army and Navy, and of military standards of conduct, instead of the scattering of energy through the temporizing and terrorizing methods connected with governmental work at home in nation, state, county and city. The physical work is a much simpler problem than it was for General Dodge to build the Union Pacific Railroad in 1867-1869, or for the Pennsylvania Railroad Company to get from New Jersey to Long Island under the Hudson River, the East River and New York City, and to build its splendid terminals in New York; and less difficult than to build the subways in New York City.

In computing the value of what we got for the forty million dollars we paid the French, our Government jots down the stock of the old and inadequate Panama Railroad at nine million dollars, which is nearly two hundred thousand dollars a mile, and we are spending about two hundred thousand dollars a mile more to relocate and rebuild most of it. The average capitalization of United States railroads is about sixty thousand dollars a mile. The gross earnings of the Pana-

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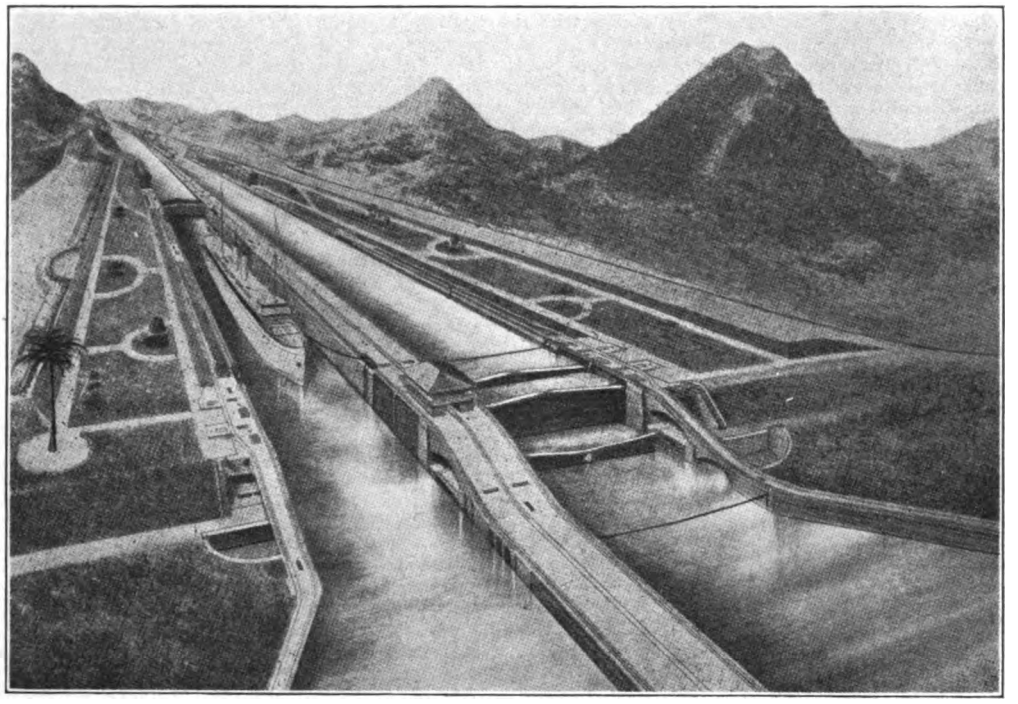


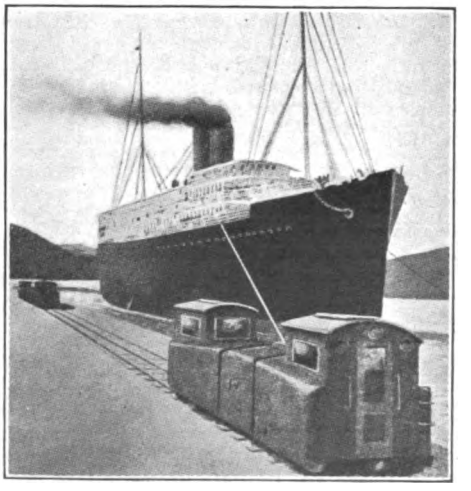
(From the Official Hand Book of the Panama Canal.)

VESSEL PASSING THROUGH PANAMA CANAL LOCKS.

ma Railroad are about ninety-two thousand dollars a mile per annum—as against eleven thousand dollars a mile average in the United States. The first class passenger rate is five cents a mile and its average rate per ton mile four cents—as against an average of three-fourths of one cent per ton mile in the United States, and when the railroad was threatened with congestion the company simply notified prospective patrons that they would not take any additional business!

The railroads of the United States are spending more every year for improvements, additions and new equipment to take care of expanding business than the whole expenditure in ten years on the Isthmus. Two railroad companies alone have invested in terminals in New York City and vicinity in the last few years one half as much as the entire cost of the canal. The City of New York is spending for a new water supply about half the amount of the canal cost, and you can see this immense work in a very agreeable motor trip from New York City. Please understand that I do not disparage the canal work at all. It is superb. To say anything less would be not only ungracious but unfair. It is well to have enthusiasm but it is also well to have perspective and it is fruitless to travel if you do not compare this and that and assemble conclusions, and so I could not forget that our railroads at home also represent the achievements of our own countrymen, who have always hanging over them the burden of sustaining their credit—a spectre unheard of in the Canal Zone.

But there is a halo around the canal, because the nation as a whole is digging it and a pilgrimage there is not only worth while, but patriotic. The chairman of the Congressional Committee said, in opening the hearing at Ancon, Canal Zone, on December 18, 1911: "The people seem to be impressed with the opinion that we are about to realize the hope of the ages in the consummation, under Providence, through the instrumentality of American brain and energy, of the greatest achievement of all time—the joining of the two oceans through the Isthmus of Panama—for the benefit, primarily, of our Army and Navy, and, secondarily, for the benefit of the commerce of the world." The canal will doubtless increase the efficiency of the Navy—some say its efficiency will be doubled—and yet we are building more battleships instead of more railroads. So far as



(From the Official Hand Book of the Panama Canal.)

ELECTRIC LOCOMOTIVES TOWING STEAMER THROUGH PANAMA CANAL.

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the "commerce of the world" is concerned, it seems evident that European commerce with the Orient will continuue to go through the Suez Canal, because on that route it passes the front doors of nine hundred millions of people, and not until the ships reach Japan and the east coast of Australia do they arrive at the line which is equidistant via Suez or via Panama from Liverpool. The commerce in the part of the globe which lies between Panama, on the one hand, and Japan and Australia, on the other, is almost *nil*, for it is nearly all ocean. The trade routes of commerce to and from the west coast of South America will, of course, be changed, and doubtless there will be some shifting of trade centers in the United States.

It is expected that the first boat will be put through the canal about September, 1913, and that they will be ready for general business about a year later. I think that the effect on commerce of the United States, at least for the first few years, has been very much overestimated by people all over the country. The tonnage per annum which Government representatives estimate will go through the canal for the first few years is far less than that which goes through the Soo Canal connecting Lake Superior with Lake Huron; it is not even as much as that now being hauled by the Chesapeake and Ohio Railway. The canal will cost about three hundred and seventy-five million dollars and the result of that expenditure is placed without money and without price at the disposal of our coastwise commerce—to compete with the railroads. Outside of any question of violating the integrity of our pledge to other countries (concerning which Great Britain has already filed a protest), the ordinary railroad mind is, perhaps, too dense to perceive why after giving United States boats a monopoly of the coastwise commerce as against outsiders, and quarantining the canal against all railroad owned boats, we should also pay the owners of the coastwise commerce lines a rebate. By rebate, I mean the remission of tolls. The practical effect of this "special privilege," is, of course, to increase the burden on other commerce, or to increase the deficit from year to year in the interest account and maintenance and operating cost of the canal —a deficit which must be made up out of the public purse by taxation. Part of the latter is paid by the railroads through the Federal income tax, and, indirectly, through the protective tariff —and part by the people of the States like Iowa, Kansas and Montana, far away from the seacoast, who would perhaps be glad to have more railroad employes. Query: why are railroads expected to be self-supporting and the canal not expected to be? The interest, and cost of maintenance and operation of this fifty-mile canal will at first amount to at least one dollar per ton of steamer contents. The Chesapeake and Ohio Railway furnishes the equivalent of a canal in the shape of a highway across the Allegheny Mountains, and besides, carries the freight itself in its own vehicles an average distance of two hundred and fifty-six miles for $1.04.

The Canal Zone area is about four hundred and forty-eight square miles, of which about twelve hundred acres (adjoining communities of people) are sanitated and that costs about five hundred thousand dollars a year. The towns of Colon and Panama are cut out of the Canal Zone and are a part of the Republic of Panama, but our Government reserves the right to enter either of them for the purpose of sanitation, or to preserve order. The towns of Panama are very picturesque and foreign looking, particularly as they are cleaner than most of our American cities. This transformation of a fever-stricken Isthmus into a healthful and even salubrious place of residence is one of the events of the world. The previous discovery that yellow fever is transmitted by mosquitoes, was a great boon to humanity. It is said that the maximum flight of the mosquito is three hundred yards when not blown by the wind, and you cannot help wondering why if mosquitoes can be regulated in the Canal Zone they are not also regulated in New Jersey. The hospital buildings and grounds at Ancon are very attractive in appearance and beautifully located. When the French were doing their work on the Isthmus it was the custom to have nurses on duty only during the day. The patients who were the worst off, were taken care of in some sort of fashion at night by the convalescents. The French counted on large losses of life from yellow fever just as they expected large human sacrifices, when they went to war. Negro as well as white laborers are well taken care of in the hospitals, are tucked up in nice clean sheets and attended by white nurses. The Subsistence Department is another fine piece of work for the welfare of the employes. It supplies them with food, clothing, etc., at low prices and does a business of about seven million dollars a year in a very business-like way. It buys wherever it gets most favorable terms, and without paying any duty. Query: If it is good to reduce the cost of living in the Canal Zone, why not at home? It is fair to say that preference is given to the United States, but about one-seventh of the purchases (in money value) are made in other countries. The negro laborers, get only ninety cents a day, but are furnished three good meals a day for twenty-seven cents. Sirloin steaks from Chicago via New York are sold at retail at twenty cents a pound. There is almost no fresh food on the Isthmus, and so practically everybody uses cold storage poultry, cold storage eggs, evaporated milk, etc. But everything is of excellent quality and well supervised for the general welfare. One of the first effects in the United States of the completion of the canal will be to diminish these large purchases.

I have come back from the canal impressed over again with the versatility of my countrymen. On the Isthmus we are patiently and unselfishly caring for the welfare of thirty thousand negroes (mostly from Jamaica) and ten thousand other employes—we are doing everything well—while at home we are impatiently and selfishly doing so many things badly. Therefore I say when you go to Panama, take along your white duck suits and your sense of humor; that is, a power to perceive our own political incongruities. And perhaps you will come home feeling both proud and humble. The canal work is a fine case of governmental ownership twenty-five hundred miles away from the politicians. The mosquitoes have been banished—and equal suffrage and the predatory politician have not yet arrived. We hear a great deal in the United States about the "Rule of the people," but when we want to do a really big thing in an efficient way we "rule" by putting it in charge of an autocrat like Colonel Goethals—a benevolent autocrat, it is true, but, nevertheless, an autocrat and not subject to the initiative, the referendum or the recall. I think the chief lesson to be

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learned from a visit to the canal is that we, like other people, accomplish the best things by centralizing responsibility instead of by dispersing it. Every American should be thankful that our country has produced a Colonel Goethals, a Colonel Wilson, a Captain Wood, whom I met most agreeably—and a Colonel Gorgas and others, whom I had the misfortune to miss. And we should be thankful that in this practical work those in charge have permanent tenure of office instead of being subjected to the infectious breezes of popular misconceptions.

The Use of Hydro-Electric Power in Railway Operations

THE increased interest which is being shown in the electrification of steam railways and the report that a number of Western lines are seriously contemplating an installation of this character, lends additional value to any information relative to the successful installation and employment of hydro-electric power in other countries. In fact such power has been successfully employed for many years in a number of European mountain localities and American engineers can undoubtedly gain much of practical value by a study of foreign experiments and developments.

The accompanying illustration shows the power plant at Montbovon, Switzerland, which not only supplies current for operating the Mortreux-Oberland and Bernois Electric Railway, but also for lighting and other service in the neighboring Swiss towns.

The water is supplied from the River Sarine, nearly 20,000 horsepower being developed as a maximum at this plant and the hydraulic station at Hauterive.

There is a dam at La Gine for use in connection with the Montbovon power house, the water being received in the latter from an underground tunnel having a section of over 100 square feet cut through the rock to the pressure chamber above the power house. The tunnel which is nearly two miles long connects with a gravel settling basin at its inlet, while at its outlet there is a concrete tunnel connecting with the river through an overflow and emptying valve.

In the power plant there are four water wheels of the Richter type, developing over 1,000 horsepower at 300 revolutions per minute, working

MONTBOVON ELECTRIC GENERATING STATION.

with an effective head of over 200 feet. There are two penstocks feeding the turbines, measuring nearly five feet in diameter and over 600 feet in length, connecting the pressure chamber with the water wheels in the hydro-electric plant. There are compensating valves installed to open and relieve the excess pressure and avoid water hammer effect, due to suddenly closing the turbine valve; and an automatic regulator working in connection with these compensating valves.

HYDRO-ELECTRIC POWER HOUSE AT MONTBOVON, SWITZERLAND.

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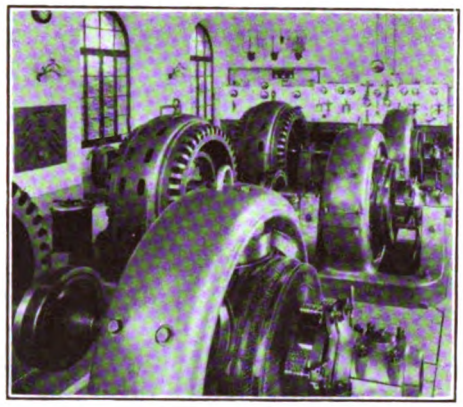

MOTOR GENERATOR SETS AT THE CHAMBY SUB-STATION.

The electric generators are of the Aloith vertical type as shown, the fields being excited by two 100 horsepower units, connected with the generator and excitor switch cabinets. The various feeder circuits are connected with a separate switch house. There are moveable panels provided for the feeder circuits without circuit breakers relay. These are of steel plate and structural iron located a sufficient distance from the wall to give space for the leads to the line and the oust bars. On this moveable iron frame work is located the oil switch, with a three-phase series oil transformer which supplies current to the three-pole time limit relay mounted on the base.

The three-phase current is transmitted at 8,000 volts over circuits of copper wire of 50 square millimeters cross section mounted on poles of wood, in triangular form, the conductors being mounted about twenty inches on centers with two three-phase circuits on each pole line.

The Chamby sub-station is shown in the accompanying illustration. This station receives the current at 8,000 volts and transforms it from a three-phase current to a direct current of 800 to 1,000 volts for use on the Montreux-Oberland-Bernois Railway. Three motor generator sets are utilized, each consisting of an 8,000-volt induction motor of 200 horsepower capacity driving a continuous current dynamo of 140 kilowatts at a speed of 430 revolutions per minute.

There is a battery installation employed for regulation consisting of 360 storage cells each having a capacity of 368 ampere hours. This battery receives and stores current during light load and during periods of peak load restores the energy to the railway line.

Personal

Wilbur Chapman Fisk.

Wilbur C. Fisk, who was recently elected president of the Hudson and Manhattan Railroad Company, was born at New York City, 1868. He graduated from Princeton University in 1890, with degree of C. E., and after leaving college, entered the banking house of Harvey Fisk and Sons, founded by his father, the late Harvey Fisk, and became a member of the firm in 1898. Shortly after Harvey Fisk and Sons undertook the financing of the Hudson and Manhattan Railroad Company, at the urgent request of the directors and W. G. McAdoo, president, Mr. Fisk accepted the vice-presidency of the company. His technical knowledge was of great assistance to Mr. McAdoo in the construction of the tunnels and he held the position of vice-president and general manager until March, 1913, when he was elected to succeed Mr. McAdoo, who has been called to serve as Secretary of the Treasury under President Wilson.

WILBUR CHAPMAN FISK.

Alfred H. Smith.

Directors of the New York Central have elected Alfred H. Smith senior vice-president. At the same time they have also made an order authorizing Mr. Smith to perform the duties of president in the absence of that executive. In so doing the board has followed a precedent and extended to Vice-President Smith the same compliment they paid to W. C. Brown, preceding his elevation to the presidency.

Mr. Smith is 48 years old and has been in railroad life thirty years beginning as a messenger in the purchasing department of the Lake Shore. He did not stay there long. Ambitious to qualify himself for advancement and to attain a knowledge of railroading in all its branches he soon joined a construction gang and was later made foreman of bridges on the Michigan division Ultimately he became a division superintendent and in that capacity had charge of two divisions and then was made in 1901 general superintendent at Cleveland. One year later he came to New York in the same capacity on the New York Central and two years later was appointed general manager.

In another three years he became vice-president

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ALFRED H. SMITH.

and general manager. Last April he was made vice-president in charge of the lines west of Buffalo, in charge of operation, maintenance and construction, both east and west of Buffalo except as to the Pittsburgh and Lake Shore, the Nickel Plate, the Boston and Albany and the Rutland. Now next to the president he is the highest executive officer connected with the system and is thoroughly familiar with all its features of operation and management and having acquired a grasp that amply qualifies him for the important and higher responsibilities that will devolve upon him.

George W. Boyd.

GEORGE W. BOYD, who was recently appointed passenger traffic manager of the Pennsylvania Railroad to succeed J. R. Wood, retired, was born in Indianapolis, Ind., August 1st, 1848. In 1863 he made his entrance into railroad life through the freight department of the Cleveland, Columbus, Cincinnati and Indianapolis Railroad, Indianapolis then being one of the greatest railroad centers in the country. All the east and westbound freight was transshipped there and its freight yards were at all times the scene of great activity. For several years Mr. Boyd served as clerk, and subsequently as chief clerk, of the freight department.

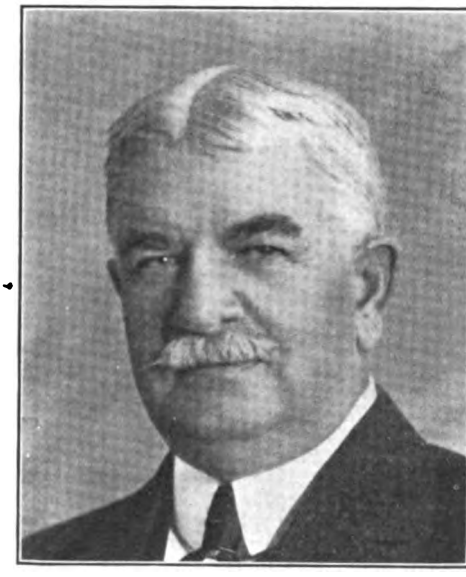
In June, 1872, Mr. Boyd was appointed cashier of the passenger department, Pennsylvania Railroad. He discharged the duties of this office until January, 1874, when he was promoted to the higher post of chief clerk. The chief clerkship remained in his hands for eight years, until January, 1882, when the office of assistant general passenger agent was established, and he was installed as its first incumbent. Mr. Boyd held that position until his appointment as general passenger agent, June 1st, 1903.

Mr. Boyd's work in relieving the passenger business of outside interference and confining the sale of tickets to regularly accredited agents has been notable. He has been an uncompromising foe of the ticket scalper and has advocated anti-scalping laws before committees of Congress, as well as before the legislatures of many States, and thereby contributed much to the legislation on this subject.

His efforts in the field of the development of passenger traffic have been unremitting and comprehensive, and he is the pioneer among railroad officials in the principle that pleasure travel, under the personally-conducted system, is the legitimate business of the railroad companies, and not of the independent promoters.

Coincident with the appointment of a new passenger traffic manager, the Board of Directors has made a complete reorganization of the passenger department, the first important feature of which is the appointment of two general passenger agents, D. N. Bell and J. P. Anderson, formerly assistant general passenger agents. Heretofore, Mr. Boyd had been the only general passenger agent on the Lines East. Under the new organization, one general passenger agent will devote his time to developing travel local to the Pennsylvania Railroad and the activities of the other will be devoted to building up the so-called "through" passenger business.

Division passenger agencies have been created at New York, Philadelphia, Harrisburg, Pittsburgh, Williamsport, Buffalo and Baltimore.



GEORGE W. BOYD.

David Nelson Bell.

DAVID N. BELL, who has been appointed general passenger agent of the Pennsylvania Railroad, was born in Philadelphia, November 18th, 1868. After graduating from the public schools of that city, he entered the general office of the passenger department, Pennsylvania Railroad, July 5th, 1885.

In April, 1891, Mr. Bell was appointed assistant advertising agent, and in November, 1896, he was assigned to duty as tourist agent. On June 1st, 1903, he was appointed special assistant to the general passenger agent. He was advanced to division ticket agent, United Railroads of New Jersey division, on August 1st, 1906, and, on June

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J. P. ANDERSON.

D. N. BELL.

F. B. BARNITZ.

1st, 1910, he was appointed assistant general passenger agent, in charge of through traffic.

James Paul Anderson.

JAMES PAUL ANDERSON, who has been appointed general passenger agent of the Pennsylvania Railroad, was born at Beaver, Pa., August 29th, 1862. At the age of twelve years he moved, with his family, to Allegheny, Pa.

Mr. Anderson received his education in the public schools of Beaver and Allegheny. He entered the service of the Allegheny Valley Railway Company, July 15th, 1880, as a clerk in the passenger department. After serving as chief clerk and traveling passenger agent, he was appointed general passenger agent of the Allegheny Valley Railway, June 1st, 1889.

When The Pennsylvania Railroad Company absorbed the Allegheny Valley Railway, August 1st, 1900, Mr. Anderson was appointed division ticket agent of the Buffalo and Allegheny Valley division. On April 1st, 1910, he was made district passenger agent of the Pittsburgh district, and on August 1st, 1912, he was advanced to assistant general passenger agent of the Pennsylvania Railroad Lines East of Pittsburgh and Erie, with headquarters at Broad Street Station.

Mr. Anderson was married to Miss Margaret Dickson Moorhead, May 4th, 1907. He is a member of the Duquesne Club and the Americus Republican Club of Pittsburgh.

F. B. Barnitz.

F. B. BARNITZ, who has been appointed division passenger agent of the Pennsylvania Railroad at Philadelphia, was born at Wheeling, West Virginia, May 5, 1880. He graduated in the class of 1902 from the University of Pennsylvania and entered the service of the Pennsylvania Railroad Company on October 10, 1902, as redemption clerk in the passenger department. He held this position for two months when he was made ticket seller. On June 1, 1903, he was promoted to be file clerk, and on December 1, 1907, was made special excursion clerk. On June 1, 1910, he was advanced to chief tourist agent, and on November 1, 1911, he was made milk agent of the Lines East of Pittsburgh and Erie. On March 1 he was promoted to his present position.

George McCormick.

GEORGE McCORMICK, recently appointed assistant general manager of the Sunset-Central Lines of the Southern Pacific with headquarters at Houston, Tex., was born July 15, 1872, at Columbus, Colorado county, Tex. He was graduated from the Agricultural and Mechanical College at Bryan, Tex., with the degree of Mechanical Engineer, in 1891. He began railway work in 1891 as apprentice in the shops of the Galveston, Harrisburg and San Antonio at Houston, Tex. In a short time he was transferred to San Antonio, Tex., as draftsman, returning to Houston in 1895 as chief draftsman. He was appointed mechanical engineer in 1900, where he remained until December 20, 1911, when he went to El Paso, Tex., as assistant superintendent of the El Paso division. He held the latter position until his appointment on February 17 as assistant general manager (mechanical) of all the Sunset-Central Lines, as above noted.

GEORGE McCORMICK.

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P. C. HART.

P. C. Hart.

P. C. HART, recently promoted to general manager of the Chicago, Milwaukee and St. Paul lines east of the Missouri River, with headquarters at Chicago, has been in the service of the St. Paul road since 1876. He began railway work as section man, and has since filled the positions of telegraph operator, station agent, brakeman, conductor, chief clerk in the superintendent's office, trainmaster, superintendent of terminals, division superintendent, superintendent of construction, and general superintendent, until his recent promotion as general manager.

Herbert S. Balliet.

HERBERT S. BALLIET, engineer of maintenance of way of the Grand Central Terminal and signal engineer of the Electric division of the New York Central and Hudson River, with headquarters at New York, has been appointed assistant manager of the Grand Central Terminal. He continues to perform the duties of signal engineer of the Electric division, and engineer of maintenance of way of the terminal. Mr. Balliet was born in Neffsville, Pa., in 1868, and was for several years a telegraph operator, working both for the Western Union Company and for the United Press Association. He was at one time station agent and operator on the Philadelphia and Reading. He began on the Lehigh Valley as operator, but he soon went into the signal department and was engaged in that department eleven years. He was appointed assistant engineer in 1901. He left the Lehigh Valley to go to the New York Central in April, 1905. For two years, 1905-1906, he was secretary of the Railway Signal Association. He has been one of the most prominent members of that Association from its earliest years, and in 1910 he was its president. In his position at the Grand Central during the past five years he has had charge of the construction of the extensive new tracks and signaling connected with the establishment of the new two-level station.

H. S. BALLIET.

W. A. McDOWELL.

William A. McDowell.

WILLIAM A. McDOWELL, who, on February 15th, was elected to the positions of vice-president and secretary of the Lexington and Eastern Railway Company, has for many years, been prominently identified with the industrial and commercial life of that part of Kentucky in which Lexington is located. He was born in Louisville in 1863, and is a graduate of the scientific department of Yale University.

After a varied experience in engineering and mechanical enterprises, he was made engineer of the Lexington and Eastern Railway Company, a position which he held for a number of years. In 1906, he was elected general manager of this road, and his intimate knowledge of its working, coupled with a fine executive ability, enabled him to maintain the high standard set by his predecessors and to carry out a number of important improvements. On January 1st, the Louisville and Nashville took over the operation of this line, and Mr. McDowell's position was then changed to that of manager of the Lexington and Eastern division.

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Financial

Annual Report of New York Central.

THE New York Central and Hudson River Railroad Company enjoyed a prosperous year in 1912. Its net revenue from operations, it is true, remained almost stationary, in fact, showing a small decrease, but the gross corporate income, owing to a large increase in dividends on stocks owned, showed a gain of $126,403. Fixed charges increased $2,951,015, resulting in a reduction in the net corporate income of $1,424,611, but leaving a balance for the year, carried to Profit and Loss of $2,743,372. The total balance to the credit of Profit and Loss as of December 31, 1912, after deducting a large amount on account of discounts, commissions, etc., stands at $13,185,413.

The expenses of the New York Central were increased by the same causes which raised costs on the Pennsylvania. Increased traffic, higher rates of pay, and weather difficulties are responsible for an addition of $5,610,950 to operating expenses. That the efficiency of the property is increasing is seen in an increase in the average train load of 35.4 tons, and in the load per car mile of .7 of a ton. The consumption of fuel by locomotives also decreased.

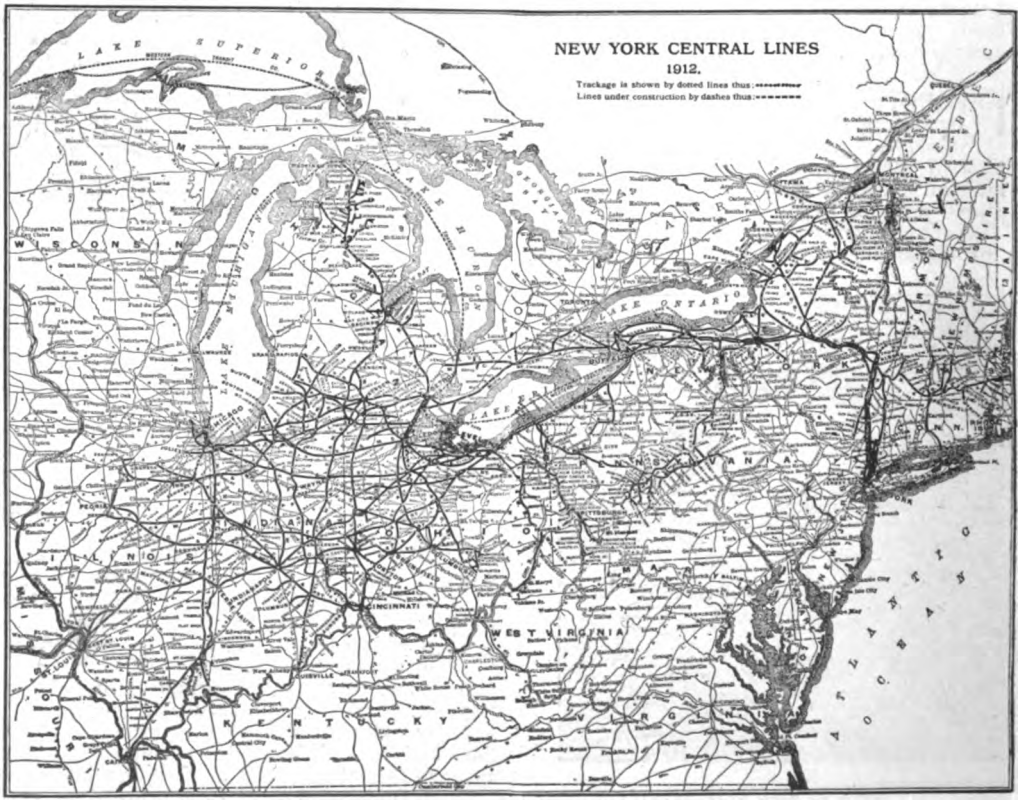
The company has a large amount of improvement work in process, most of which consists of four-tracking and electrification. During the year there was a net addition to the property account of $17,083,899. The report calls attention to the establishment of certain equipment trusts by which the New York Central, in company with its subsidiaries, will become responsible for the payment of about $35,500,000 of equipment trust certificates to be issued from time to time. The equipment of the Merchants Despatch Transportation Company has been purchased during the year.

In reference to the labor difficulties which occupy a prominent position in every railroad report to-day, President Brown quotes extensively from the recommendations of the Engineers' Arbitration Commission, but speaks disapprovingly of its conclusions as to the necessity for compulsory arbitration. "Compulsory arbitration," he says, "of course means that the railroads must submit the questions of compensation and conditions of service of all employes to a commission having no interest in, nor responsibility for, the financial result of the operation of the property.

"For the employe it involves the surrender, to some extent, of his liberty of action in deciding whether the wage he receives and the conditions under which he works are satisfactory or not.

"The proposition is not an attractive one for either the employer or the employe, but it is doubtful if, in the long run, it will not be better for both than the conditions which may arise without some such arrangement for settling controversy."

In this connection it is interesting to note that in 1905 the New York Central paid to its employes 42.4 per cent in wages and in 1912 46.8 per cent. Making allowance for the additional num-



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ber of employes, the increase in seven years is $9,500,000, an amount equivalent to 4.27 per cent on the stock of the company.

It is indeed significant that this great property, enjoying exceptional advantages from its position, operated with the highest efficiency, was able to earn during the past year only a five per cent dividend on its stock and a surplus of 1¼ per cent.

A feature of the report which is deserving of especial comment, is the following remarks upon the co-operation of the various commissions, with which the company comes in contact:

"Appreciative acknowledgment is made to the Public Service Commission of the State of New York, the Massachusetts Board of Railroad Commissioners and the Interstate Commerce Commission for helpful co-operation in improving the service and in maintaining friendly and cordial relations between the road and the public.

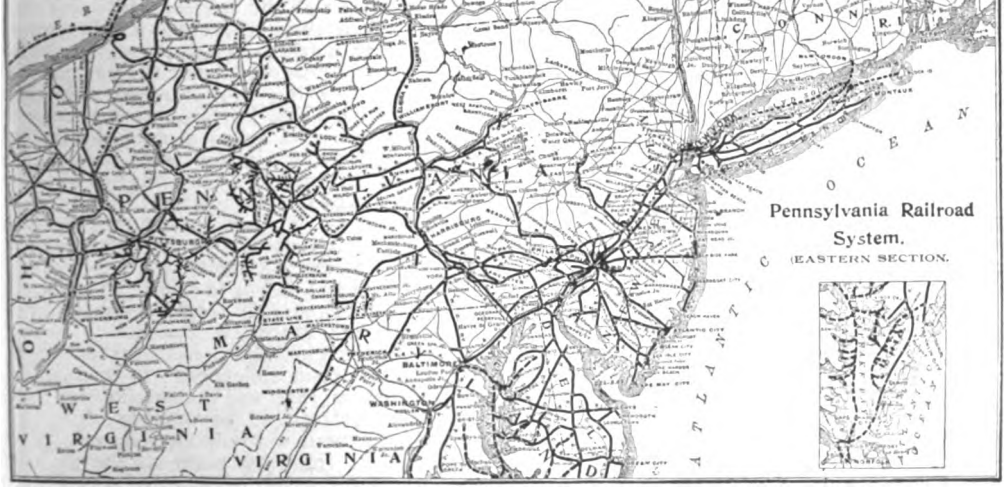
"Especial obligation is felt for the timely and efficient efforts of the Interstate Commerce Commission in expediting the movement and preventing the abuse of cars. The freedom with which an unprecedented volume of traffic has been moved and the absence of any serious car shortage or congestion is due in no small measure to this wise and helpful co-operation."

Annual Report of the Pennsylvania Railroad.

THE Pennsylvania Railroad Company in 1912 enjoyed the most prosperous year in its history, both from the standpoint of gross revenue and from that of net operating income. The gross revenues reached the imposing total of $[illegible],023,693, an increase of $17,120,185 over 1911, and $10,210,868 above the previous high record reached in 1907. Net operating income showed a gain of $3,403,117 over 1911, but was only slightly above the figures reached in 1907. The remarks of President Rea contain a number of points which explain the significance of these figures. The large increase in gross earnings was met by an even larger percentage increase in operating expenses, which showed a gain of $13,409,551, or 11.8 per cent. This increase in operating expenses is not only due to the increase in traffic, but also resulted from the large additions to the cost of repairs and renewals to various portions of the property, and to increased charges for depreciation. The severe weather of the preceding winter, higher wages paid, the operation of the Extra Train Crew Law, increased cost of materials, and betterments to the roadway, are additional explanations of the increase in operating expense.

We have elsewhere referred to the very pertinent although restrained remarks of President Rea upon the labor situation. In spite of the unsettled outlook in this field, the company announces an extensive program of betterments, among which the improvement of Broad Street Station, in Philadelphia, and the construction of three tunnels and extensive grade reduction on the Allegheny division between Pittsburgh, Oil City and Buffalo, are of primary importance. The last mentioned improvements will shorten the available route to Buffalo by over 58 miles, and will postpone for several years the double tracking and other expenditures on the present line.

A conspicuous example of expenditures made in aid of passenger traffic is the proposed improvement of Broad Street Station. This program, when completed, will provide increased terminal facilities and approaches, for approximately twenty years to come, for lines which equal eight double track railroads. No information is given in the report concerning the financial plans of the company, other than to intimate that a large portion of these improvements will be made out of income and added to the reserve for additions and betterments. The only impor-



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tant capital issue during the year consisted of $7,000,000 of equipment trust certificates.

The Pennsylvania Railroad is on the eve of another period of expansion, forced upon it by the rapid growth of population and industry along its lines. The only deterring influence to the successful carrying out of these comprehensive plans for improving its service, will be the hostile attitude of railway labor, which unless changed, might make the management cautious about incurring new obligations.

Annual Report of the Lackawanna.

OF the anthracite coal roads the Lackawanna, according to the 1912 annual report, earned 38.8 per cent on its stock compared with 39 per cent in 1911. The company has for a number of years made large expenditures out of earnings in the improvements of its property. Renewals and betterments received an amount equal to 7.2 per cent on the capital stock in 1911 and 8.4 per cent in 1910. President Truesdale states in the annual report: "The management believes that the large expenditures for additions and betterments during recent years have added so greatly to the facilities of the company that further outlays in that direction may be reduced quite materially for the immediate future. The company's surplus, after appropriating $1,720,698 to additions and betterments, and $6,028,800 to dividends, exceeded $4,000,000, raising the profit and loss surplus to $29,500,000."

An Uncertain Outlook.

THE United States, at present, is suffering not only from uncertainties connected with the policies of the new Administration, but also because of money stringency which is much more severe abroad than it is in this country. In every country of Europe gold has been hoarded in anticipation of a possible outbreak of hostilities among the great powers. The danger of this is now regarded as remote but the apprehensions excited by rumors of war and preparations for war have resulted in practically drying up the stream of investment funds which normally flows in such enormous volumes out of the current savings of western Europe. As a result large amounts of American securities have been liquidated and a considerable amount of gold has been withdrawn from New York. The European situation, although still unpromising, is now regarded as out of serious danger. The powers have reached an agreement among themselves as to the terms on which the Turkish war will be concluded and there is no reason to doubt their ability to enforce these terms upon the combatants. With the conclusion of peace in Southeastern Europe, it is expected that a large amount of this hoarded money will be released for investment.

The Business Situation.

ASIDE from war and politics there is nothing in the business situation to cause the slightest uneasiness. The report of the iron output for February shows a large production and the continued activity in the steel trade has been a matter of surprise. The railway equipment industry is especially active. It is estimated that the orders now booked by steel manufacturers are large enough to assure their capacity operation for the next six months. Unfilled orders on the books of the United States Steel Corporation show a small decrease, but this is not regarded as serious. The corporation earned during the year a balance for common dividends after all charges, including depreciation and sinking funds, of $29,038,070, or 5.71 per cent on the outstanding capital stock, as compared with 5.9 per cent earned during the past year.

The record of bank clearings, railroad earnings, manufacturing output, and scarcity of labor, all point to a condition of sustained business activity which with the unfavorable influences already noted removed, will make for higher stock values. Securities are now at the lowest average level since September, 1911. With stocks like Baltimore and Ohio, Atchison, Lehigh Valley, Northern Pacific, Southern Pacific and Union Pacific selling on better than 6 per cent basis it is hard to see how the investor can expect much higher yield on these high grade stocks.

The Bond Market.

THE bond market has also suffered in sympathy with the decline in stocks. There has been, however, a fairly good demand for seasoned railroad and public service issues. Among other influences the decline in the prices of certain industrial preferred stocks is expected to send investors back to bond buying. The average price of listed railroad bonds has, however, declined more than three points during the past year. During February alone there was a decline of over a point in the average price of twenty-five bonds listed on the New York Stock Exchange. The new issues which were made during the year show a steady increase in yield to the investor. For example, the New York Central's lines equipment trusts sold this year on a 4.65 basis, while in 1911 the yield was only 4.45.

In this condition of the bond market it is not expected that railroads will make any large offer. They will be compelled to raise their capital either by an appeal to their stockholders or by some form of notes.

Showing of New England Roads.

AN exception to the generally satisfactory condition of the railroads from the standpoint of surplus earnings which, while not showing any marked improvement, are holding their own in the face of many adverse influences, is furnished by the two principal railroads of New England. The Boston and Maine for the last two fiscal years failed to earn the dividends paid by $2,080,000. In the fiscal period ending June 30, it is likely that the company will do no more than earn its fixed charges. Its profit and loss surplus as of June 30 last was $1,812,090. It is officially estimated that the property of this company requires $50,000,000 to be spent upon it before it will be efficient to handle its traffic. The New Haven has already spent $15,000,000 for improvement and $10,000,000 remains to be spent.

The Boston and Maine has outstanding $22,000,000 short term obligations of which $12,000,000 fall due in June and $10,000,000 next February. It is evident that the company's financing in the past has been woefully mismanaged. It was Mr. Mellen's frank statement of the deplorable physical condition of the property when he took

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charge of it, which was primarily responsible for the decline in the market value of the company's shares. For this condition Mr. Mellen, is, however, in no wise to blame. The present situation is the outcome, first, of some extremely burdensome leases, and second, of the neglect of the physical condition of the property.

It is expected that the New Haven directors will recommend that its stock be placed on a 6 per cent basis. The payment of 8 per cent dividends in the year ending June 30, 1913, indicate a deficit for the year of over $2,000,000. The outlook is at present for a surplus of not to exceed $12,300,000 which is about sufficient to pay the 6 per cent rate. Tariff uncertainty is primarily responsible for the temporary industrial stagnation which is afflicting southern New England and is preventing the earnings of New England railroads from showing a normal increase.

The Situation Outside of New England.

OUTSIDE of New England, railroad earnings are generally favorable. The Western Maryland is continually improving its showing, and by June 1st it is expected that the completion of the improvements which have for some time been in progress, will enable the company to take advantage of the large tonnage over the extensions through its connection with the Pittsburgh and Lake Erie. The Louisville and Nashville's gross and net earnings are showing so marked an improvement that it is expected that the year will show a considerable balance, although the first part of the year was unsatisfactory.

The earnings of the Southern Railway Company are showing a satisfactory improvement. Up to the close of the first week in February gross revenues were $3,580,000 above the corresponding period of last year. For the six months the Southern Railway has more than earned its full year's preferred dividend.

The net operating revenue for the Baltimore and Ohio for January shows an increase of $801,787 over the corresponding period of last year. The predictions are made that the gross earnings of the company will pass the $100,000,000 mark and that the net income will be between 11 and 12 per cent on the common stock.

The Western railroads have also shown marked improvement. The following tables, taken from the *Wall Street Journal*, show, first, the gross earnings for the six months ending December 31, the increase over the first half of the fiscal year, and the percentage of gain, and second, the net earnings for the same period. It should be noted with especial gratification, that these large Western railroads have shown larger proportion of gains in net earnings than in gross.

Western Railway Earnings.

Six months	Gross	Increase	% Inc.
Atchison	$61,228,359	$6,291,575	11.4
St. Paul (old system)	39,004,166	5,659,711	16.9
Great Northern	44,110,727	7,492,651	20.4
Illinois Central	33,413,641	2,920,302	8.9
Northern Pacific	39,721,737	5,241,968	15.2
Northwestern	43,854,869	4,594,811	11.7
Southern Pacific	75,648,105	6,578,730	9.5
Union Pacific	51,580,269	4,535,724	9.6
	Net	Increase	% Inc.
Atchison	$19,011,544	$2,540,760	15.4
St. Paul (old system)	12,340,612	4,418,585	55.7
Great Northern	19,725,455	2,746,294	16.1
Illinois Central	6,000,251	1,487,276	24.7
Northern Pacific	15,620,888	1,945,413	14.2
Northwestern	14,592,191	2,339,835	19.0
Southern Pacific	26,689,664	3,454,848	14.8
Union Pacific	21,864,572	2,502,154	12.9

An interesting showing, in conection with the comparatively moderate return earned by the New York Central on its capital stock last year, is the fact that the undivided earnings of its principal subsidiaries brought the percentage of earnings, behind the stock, up to 10 per cent. The Michigan Central, for example, earned 14.6 per cent on its capital stock and had a surplus for the year of $1,602,000, while the Lake Shore earned 33.1 per cent with the large surplus of $7,584,384. The other subsidiaries also showed substantial gains.

The Erie.

THE Erie Railroad is doing the heaviest business in its history. January gross revenues increased $614,000, or 14.6 per cent over last year. From July 1st to February 14th the gain in gross earnings was $3,485,000, or 9.6 per cent. All branches of traffic, merchandise, coal and passenger, are showing large gains. The open winter has enabled the Erie to continue without interruption the work of constructing and grading 276 miles of second track which will give the company a complete double track line between New York and Chicago. These improvements, it is estimated, will increase the company's carrying capacity 50 per cent.

The Wabash.

THE Wabash is rapidly progressing to a condition of complete solvency. In the first week of March gross revenues were $572,000, an increase of 15.1 per cent over the same week of 1912. February gross earnings show an increase of 13 per cent over last year, and from July 1st to March 7th the gain in gross earnings was 11.6 per cent. If the present increase in earnings continues, the company will show a gain in gross earnings for the full fiscal year of $3,650,000. A large part of these increased revenues is, of course, going into the property.

Pungent Observations on Government Ownership.

C. D. Kellogg, secretary of the American Railroad Employes and Investors Association, calls attention to some pungent observations on Government ownership of railroads recently made by "Cy" Warman, who is well known for his writings on railway matters. The observations referred to are as follows:

"American railways are well managed, deliver the goods cheaper and pay better wages than do the railways of any other country on earth.

"Private railways are a success. Government railways are a failure.

"Private railways kill a few people. Government railways kill a nation.

"'Push,' on a private car line, may put you in a private car. On a government road it takes 'pull.'

"I believe that in nine cases in every ten, where a country is burdened with a government railway that country would like very much to lose the road.

"The private railway is a great field for bright, ambitious young men. A government road is a haven of rest for nephews and second sons."

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Operation

Teaching Railway Signaling in England.

FROM OUR ENGLISH CORRESPONDENT.

A VERY interesting school has been established by the Lancashire and Yorkshire Railway of England for the teaching of railway signaling and some account of its work with illustrations will be interesting to readers of the RAILWAY WORLD. It has been organized to give facilities to members of the staff of this railway to extend their knowledge of railway working; and, with its present equipment, is the finest school of signaling in England.

A model miniature railway is provided with signals and points worked from three signal boxes. Signal box "T" works the points and signals in connection with a terminal station so laid out that all types of operations which require to be carried out at a terminal station can be demonstrated; this signal box is connected by block telegraph circuits to signal box "A." Signal box "A" operates the points and signals in connection with up and down main lines, the inlet to a goods loop running between signal box "A" and signal box "B" and also the points leading into a refuge siding; this signal box is also connected by the block telegraph circuit with signal box "B." Signal box "B" works the outlet from the goods loop and the junction to and from signal boxes "C" and "D" respectively, and is connected by block telegraph circuits with signal boxes "A," "C" and "D."

The model railway as laid out at signal boxes "T," "A" and "B" allows of all kinds of operations under different conditions to be demonstrated.

A track circuit is provided between the up starting signal for "B" and the up home signal for "A" and when a train is upon the track circuited section of the line, the block instrument is locked at the "Train on Line" position, a three-position track indicator in signal box "A" shows the approach of the train and the up starting signal for "B" is locked in the danger position. This arrangement shows how a track circuit can be used for protecting an obstruction between the last stop signal for the signal box in the rear, and the home signal for the signal box in advance.

Track circuits are also provided between the fouling points of the junction at "B"; and the starting signal to "C" and the starting signal to "D" operate indicators in the "B" signal box, showing when the line to "C" or "B" respectively is obstructed and also lock the protecting signals. This arrangement shows how track circuits can be used for protecting an obstruction between home signals and starting signals.

At the up home signal from "D" for signal box "B," to and from electric bell communication is established which operates an indicator in the signal box at "B" showing "Train waiting at signal," and demonstrates what is done at places where such appliances are in force in substitution of carrying out the provisions of rule 55 in the book of rules and regulations. This indicator is replaced to the normal position when the home signal is lowered.

Rule 55 is also suspended in connection with

INTERIOR OF SCHOOL OF SIGNALING, LANCASHIRE AND YORKSHIRE RAILWAY, ENGLAND.

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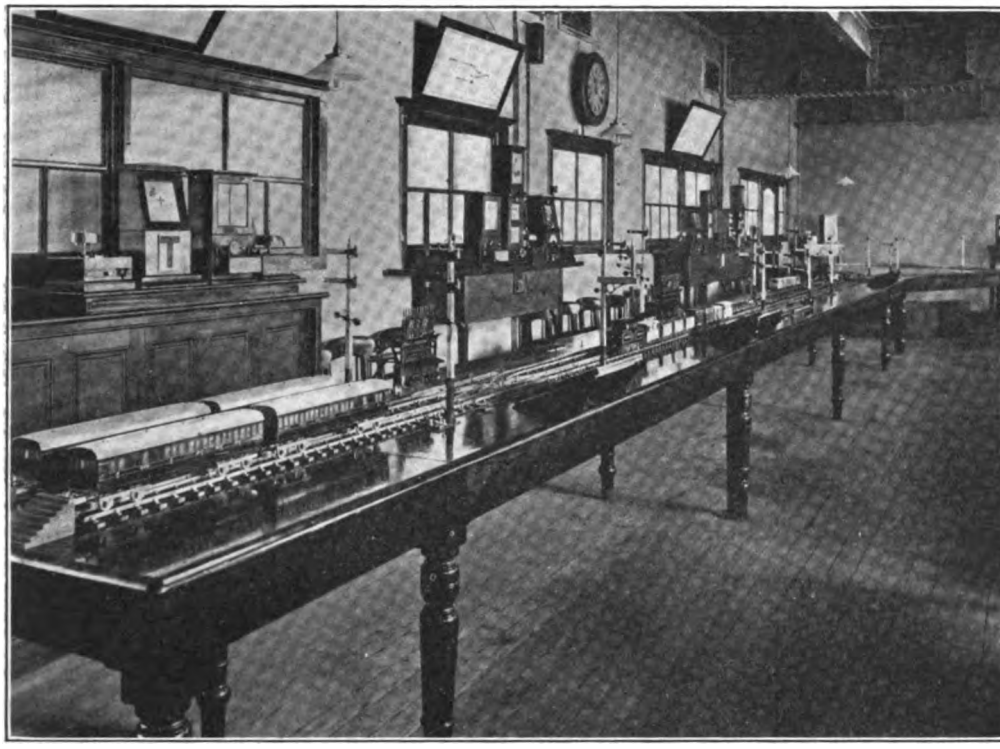

MINIATURE RAILWAY AND APPLIANCES IN SCHOOL OF SIGNALING, LANCASHIRE AND YORKSHIRE RAILWAY, ENGLAND.

trains detained on the track circuited portion of the line similar to the practice which is in operation on the Lancashire and Yorkshire Railway. At the signals where rule 55 is exempted a plate is fixed to this effect.

Miniature engines of the company's standard electric and steam type are run along the railway, and in order that all types of trains may be dealt with, miniature passenger and goods vehicles are also used. The trains are electrically propelled by the use of a third rail similar to the electric traction system in operation on the company's electrified lines in the Liverpool and Southport districts and are so arranged that by means of keys in connection with separate traction section circuits, a train may be drawn forward or set back, as required, on different parts of the railway.

At each signal post a cut-out switch is also fixed so that students taking up the position of a driver of a train may bring it to a stand at a signal when at danger and restart the train after the signal has been lowered.

One of the company's standard signal box lever frames with the necessary block instruments is fixed in the school and so arranged as to work the points and signals which would be required for a railway laid down as shown in the signal box "B" sketch. This lever frame is extensively used for dealing with all kinds of operations, as by means of the illuminated diagram the passage of the train along the line can be indicated. Illuminations can be placed on each running line to indicate the following positions:

(1) Train passed distant signal.
(2) Train at a stand at home signal.
(3) Train passed signal box.
(4) Train at a stand at starting signal.
(5) Train passed starting signal.

Electric-tablet instruments are provided and also patterns of the standard type of signals in use on this company's line together with apparatus showing how the chain communication between passengers and guards and engine drivers is operated.

The questions put down for examination for prizes are calculated to leave the graduated pupil conversant with what he should do under almost any conceivable set of circumstances. The following are questions from recent papers:

Can a signalman at a junction allow a goods train, light engine, or coaching stock train to leave a loop line or siding during the time a goods train, light engine or coaching stock train is approaching?

Where station yard working is in operation and the line on which a train is required to run is already occupied, how should such a train be allowed to enter the section?

May a signalman shunt outside the home signal in all cases if he can obtain the necessary permission from the rear?

If a train breaks down in the section in advance, and before "Train out of section" has been received for it, and if the fireman or guard comes back asking for an assistant engine, or for the break-down vans, what should be done?

If the "cancelling" signal is received from the signal box in rear when the block instru-

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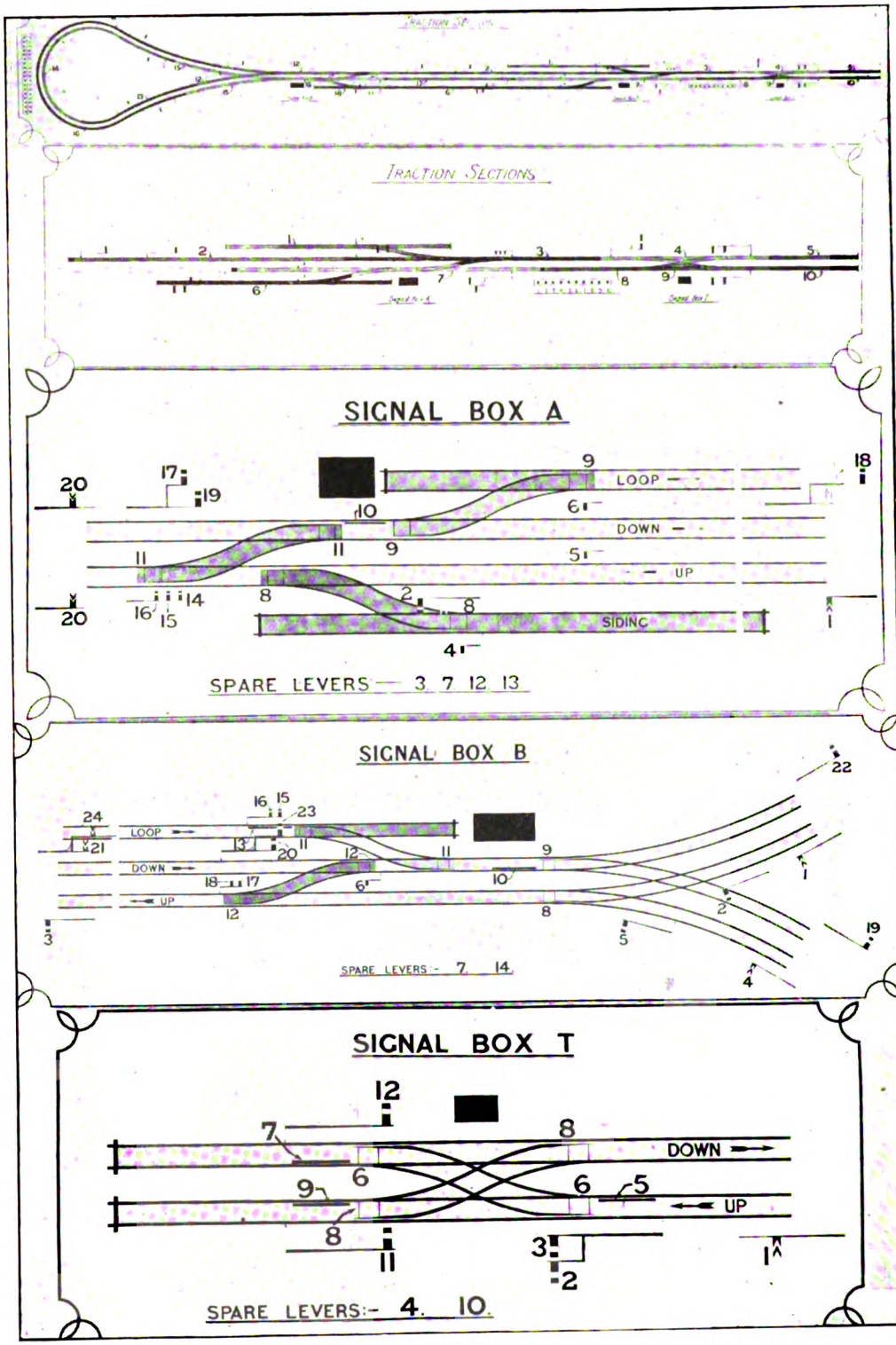

Diagram of Miniature Railway, Showing Location of Various Signal Boxes and Switches.

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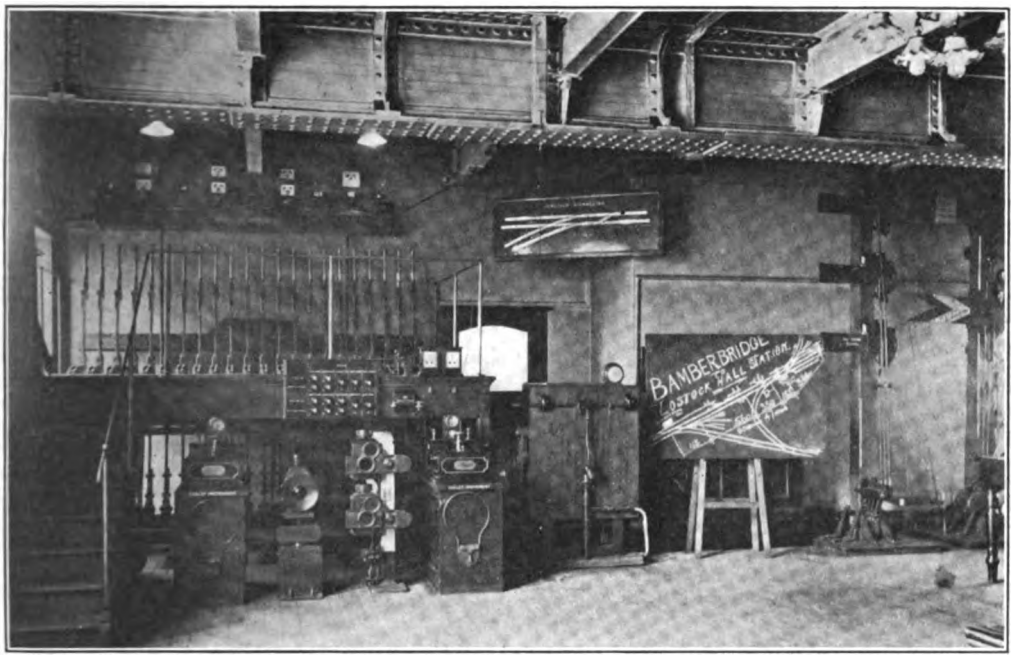

STANDARD BOX AND SIGNALS, LANCASHIRE AND YORKSHIRE RAILWAY, ENGLAND.

ment shows "Line clear" or "Train on line," what action should be taken with the block instrument?

If a goods train for which the "Is line clear" signal has been sent forward and acknowledged disposes of its load at a signal box, and only the engine or the engine and one or two break vans goes forward, what is to be done?

If a train is running between a box and the box in advance when the first-named box is switched in, and afterwards "Train out of section" for it is received from the box in advance, what should be done?

The Progress of the Safety Campaign.

IT is apparent that the "safety first" movement is about to become one of the historic events in the annals of railroading. As from month to month we have noted one system after another falling into line with the result that within a space of less than two years this work has been taken up by almost every large railroad system, it seems almost impossible to imagine any additional lines of development. A review of the safety work of the past month, however, shows most important progress and it now appears that the movement bids fair to become international, for the Chicago and North Western Railway has received a request for full information concerning its safety work from the vice-president of the Imperial Government Railways of Japan. A similar request has been made to the Baltimore and Ohio Railroad by the chairman of the Railroad Branch of the Young Men's Christian Association of the Finland State Railways at Helsingfors, Finland.

Scientific organizations are recognizing the value of the work and are preparing to co-operate in it. Among the papers discussed at the meeting of the American Railway Engineering Association, held in Chicago March 18th to 21st, were a number which concern the problem of making railway travel more safe.

The American Museum of Safety is about to inaugurate a six months' educational campaign in the public schools of New York and Brooklyn for the purpose of preventing accidents on railways, street car lines and from vehicular travel.

Mrs. E. H. Harriman has rendered a distinct service to the movement by offering a medal to be known as the "Harriman Railway Medal" which is to be awarded annually by the American Museum of Safety to the railway making the greatest progress in safety and accident prevention during the year. The medal is intended as an incentive to the great railway systems of America to reduce the number of accidents along their lines. The first presentation of the medal is to be made in 1914. The trustees of the American Museum of Safety are charged with the duty of preparing a set of rules outlining the conditions under which the award will be made. The trustees have invited Mr. Julius Kruttschnitt, president of the American Railway Association, to make suggestions concerning this matter. The chairman of the committee having charge of this work is Mr. C. L. Close, general manager of the United States Steel Corporation.

The Mammoth Pittsburgh Rally.

WHAT in all probability is the largest single safety rally thus far held was the gathering in the Exposition Hall at Pittsburg, on March 10th, at which about 12,000 people were present. This notable audience was made up of the employes and their families from every railroad system entering that city, and from some of the larger industrial establishments which have undertaken such work. The exercises consisted

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of moving pictures and stereopticon views of a fitting character and of talks by a number of railway and industrial men. One of the speakers effectively summed up the purpose of the meeting when he stated that "it was designed to cause more weddings, fewer funerals, more flowers for the bride and fewer sadnesses over accidents which might have been avoided." One speaker urged the men to lay as much emphasis in their union lodges upon the matter of safety as they did upon the matter of wages or hours of service. He advocated that a careless man should be brought before the lodge and given to understand that such a course of action was a serious offense.

Many other safety rallies have been held throughout the country during the month; a number of these have been notable not only from the standpoint of the size of the gathering but from the quality of th aeddresses made. It is obviously impossible to even briefly chronicle these gatherings. Railway officials, however, realize that while monster meetings are impressive and produce much good, the real basis of the "safety first" movement lies in the universality of the campaign so that it reaches every worker no matter how remote he may be situated.

Fitting Up "Safety" School Cars.

TO this end several railroad systems have, at large expense, fitted up school cars which can be sent to every point on the system for the prosecution of safety work. The Burlington, for example, has fitted out a car with stereopticon and other facilities for showing pictures, and with seats arranged for the auditors. This car is being sent to the shops, freight yards and stations along the system.

The Chicago and North Western Railway has appointed C. G. Stecker as signal instructor with orders to instruct enginemen, trainmen and other employes in the use of signals and signal indications. A car has been fitted out for the purpose of carrying on this work which contains not only stereopticon and moving picture machines but carries charts and other exhibits to visualize the signal instruction.

Frisco System to Enlist Children in Safety Fight.

THE Frisco System has prepared a circular which is to be sent to the school principals in every important town in its territory, with the request that they read the statement to their pupils and post it, if possible, in a conspicuous place. It is suggested that an excellent topic for school essays is the "safety first" movement or some of its phases, such as the dangers of trespassing on railroad property; the folly of walking on the track, playing in the yards, or "hopping" moving trains. The circuar contains the striking statement "that in the years 1901-10, inclusive, 103,452 trespassers were killed or injured on the railroads of the United States. Of this number 15,000 were under the age of 14 and 20,000 were between 14 and 21 years of age. The Frisco System, in addition, is endeavoring to secure the co-operation of the local authorities in the towns in its territory in keeping the children away from its property.

Lehigh Valley Safety Work a Success.

THE officials of the Lehigh Valley in charge of the safety campaign are very much encouraged with the progress of the work. The results thus far secured are even more satisfactory than was anticipated. This company has offered a "safety banner" which is to be awarded to the division having the best safety record for the year.

Necessity for Greater Care in Employing Men.

MR. GEO. BRADSHAW, general safety agent of the New York Central Lines, in an address before the Western Railway Club, declared that "more care should be taken in determining the mental and moral qualifications of men employed in responsible positions. There should be an employment bureau on every large railroad having authority to employ men and to make a thorough investigation of the history of each applicant. We should have the finest body of men in the world in charge of our trains. Every boy wants to go railroading and we should select the best of them for the service."

The Necessity for Safety Campaigns to Protect Our Streets.

PERHAPS the only serious objection which can be raised to the "safety first" movement is the impression which it has created in the minds of many poorly informed people that it is more dangerous to ride on the railroad than to travel in any other manner. That such is not the case is something which is easily demonstrated. In the year 1912 in which the railways hauled, 1,000,000,000 passengers a total of 35,000,000,000 miles, the number of passengers killed was only 139, while the number of persons killed by automobiles in New York City alone was 146. The number of people killed last year by automobiles in Chicago was 38 per cent of the total number killed on all of the railroads during the same period.

Report on Safe Transportation of Explosives.

THE chief inspector of the "Bureau for the Safe Transportation of Explosives and Other Dangerous Articles," has submitted his report on the work of the Bureau for the calendar year 1912. The report shows that the number of boxes of high explosives and kegs of black powder condemned as unsafe for transportation, has materially decreased for the year under review. As compared with 10,902 boxes of high explosives, which were condemned as unsafe in 1910, and 6,591 in 1911, only 4,798 were so condemned in the year 1912. The number of kegs of black powder so condemned decreased in the three years from 1,291 to 1,205, and 399 respectively.

During the year, the Bureau gave 668 lectures to employes and railway officials, made 14,609 inspections, and enrolled sixty-two new member-companies, operating 13,540 miles of road. An interesting feature of the report are the illustrations which accompany it, some of which are herewith reproduced, showing common errors in loading, made by shippers, which indirectly lead to explosions. Attention is called to the fact that a very considerable proportion of the accidents is

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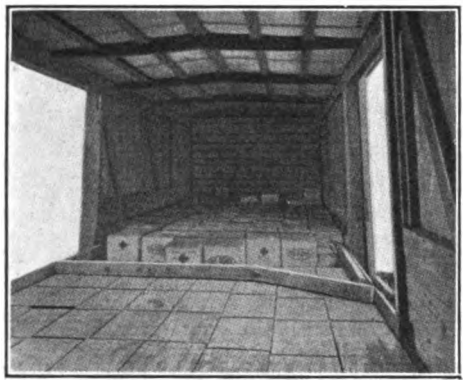

Interior of box car showing a broken box of dynamite in a carload consisting of 460-fifty pound boxes, total weight 23,000 pounds. The damage to the box of explosives was due primarily to faulty loading, although the car must have been subjected to extraordinary rough treatment, as the entire load had shifted twenty inches from the further end of the car.

due to rough handling of cars containing explosives by railway employes. This is in part due to the fact that employes fail to appreciate that many freight cars stand treatment without apparent injury, that is disastrous to the packages of freight in the car. The report recommends that railway officials should impress upon their men the fact that where a car of ordinary size is colliding at a speed of five miles per hour, with a string of loaded cars, the end box of dynamite or other high explosive is subjected to a pressure of over 7,300 pounds, which is likely to break open the package, either causing an explosion at that time, or later, through friction, shock or spark with the exposed contents. It is recommended that dangerous explosives be given the preference over non-perishable freight in train and car movement. The major portion of the report consists of a digest of the facts and causes of the various railway explosions investigated by the Bureau during the year.

Co-operation of Officials and Employes.

AN encouraging sign of the times is the rapid extension of co-operative efforts between railways officials and their employes. Vice-President Horn, of the Boston and Maine Railroad, has inaugurated a series of conferences with the various classes of employes under his jurisdiction. The first meeting was made up of the passenger and freight conductors. Mr. Horn discussed the history of railroad rules and the public attitude toward the railroad. He explained the recent decline in the market quotations of the stock of his company on the ground that the public did not look with as much favor upon railroad stocks as formerly because of the many hostile attacks to which the railroads had been subjected; the decline was in no way the result of the New Haven's control.

Railway officials are following with much interest the policy recently inaugurated by the New York Railways Company, which operates a considerable proportion of the surface railways in New York City, of establishing co-operative stores for its employes. Every article offered is quoted at considerably less than prevailing prices—prices in fact are fixed at the actual wholesale cost plus the expenses of operation. The company is prepared to make up any deficit which may occur, believing that such an expenditure would be amply justified by the effect of the co-operative stores upon the employes.

Pennsylvania's Employes to Give Information Concerning Delays, Accidents, etc.

INSTRUCTIONS have been given to conductors and station agents by the Pennsylvania Railroad Company requiring them to give prompt information to passengers of the causes of delay in traffic and if necessary the best means of proceeding on their journey. Notices are to be posted on bulletin boards by station agents stating the location of the obstruction to traffic, the probable length of delay and any other information as to the cause and extent of the difficulty. When a train is disabled at or near a station passengers who desire to communicate with their friends from the station are to be afforded promptly the use of the telephone or telegraph.

This wreck shows what can be expected when high explosives are subject to rough treatment. In this instance, occurring some years ago, the engine came in contact with about 2,800 pounds of dynamite and an explosion immediately occurred with the results as shown.

Economies in Coal Consumption on Lehigh Valley.

THE Lehigh Valley Railroad Company is carrying on an energetic campaign to further reduce the consumption of coal on its locomotives. In addition to the road foreman of engines, who has general supervision of this work, expert firemen are assigned to train new men in the methods of economizing in the use of fuel. Accurate records of coal consumption of each locomotive are kept and wherever excessive use is discovered, corrective measures are applied. It is impressed upon the men that with the exception of wages, fuel constitutes the largest single item in the cost of operation; that the company consumes 150 carloads of coal a day requiring an expenditure of about $10,000, and that the saving of .10 per cent in the fuel would mean $1,000 a day.

In spite of the fact that the company is running larger and heavier trains than a year ago, and that many new firemen were employed in the latter months of 1912, the consumption of coal per ton mile has shown a net decrease of 5 per cent, as compared with the same period of the previous year.

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Magnificent New Trains in the West.

ONE of the most notable developments of the month has been the announcement by several of the transcontinental systems of new limited trains running on fast schedules. The Union Pacific has announced that the "Overland Limited," on and after April 10th, will leave Chicago at 7 P. M. and arrive at San Francisco at 9.30 A. M. on the third day thereafter instead of 2.10 P. M. as at present. This will amount, in effect to the saving of a business day. In the opposite direction the train will leave San Francisco at 2 P. M., arriving at Chicago at 9 A. M. on the third day. An extra fare of $10 will be charged. All steel equipment will be used throughout, the new cars being fitted with every modern convenience, including barber shop and bath. No day coaches will be carried in this train. In addition, a new train will be placed in service, in connection with the St. Paul, to be known as the "Pacific Limited." It will leave Chicago at 10.45 A. M., arriving at San Francisco at 9.30 A. M. and at Los Angeles at 10 A. M., the third morning. In the opposite direction the train will leave San Francisco at 10.20 A. M., arriving at Chicago at 8 A. M. on the third morning.

North Western Establishes New Limited Train.

ON April 1st, the Chicago and North Western Railroad will begin the operation of a new 64-hour and 30-minute train between Chicago and San Francisco. The train will leave San Francisco at 2 P. M., arriving at Chicago at 9 A. M. on the third morning. The Chicago train will leave at 7 P. M., arriving at San Francisco at 9.30 A. M. the third morning. No day coaches will be carried.

St. Paul Eliminates Extra Fare on 72-Hour Train.

EFFECTIVE April 1st, the Chicago, Milwaukee and St. Paul Railroad will discontinue the extra fare heretofore charged on its 72-hour train from Chicago to San Francisco and Los Angeles. It is believed that this will greatly stimulate travel between Chicago and the Pacific Coast over this route.

Frisco Secures New Orleans Terminal.

ANNOUNCEMENT was made on March 14 that an agreement had been reached between the St. Louis and San Francisco and the Illinois Central by which the former will use the tracks of the Yazoo and Mississippi Valley between New Orleans and Baton Rouge. This action was forecasted in the last issue of the RAILWAY WORLD. It followed the decision of the courts that the contract between the Frisco and the Louisiana Railroad and Navigation Line, by which the former had secured a New Orleans terminus, was null and void. It is understood that the new arrangement is for a term of ninety-nine years.

New York Central Proposes to Absorb Lines.

THE New York Central and Hudson River Railroad Company has made application to the Public Service Commission, Second District of New York for permission to absorb the Rome, Watertown and Ogdensburg Railroad Company and its subsidiaries. The New York Central now holds a lease on the Watertown railroad for its corporate existence and owns 80,188 shares of the total issue of 100,000 shares. One of the problems which must be adjusted in connection with the proposed consolidation arises out of the fact that a number of the towns in the northern part of the State, tributary to this road, issued bonds for the purpose of financing its construction. It is problematical what position these municipalities will take upon the proposed consolidation.

New Haven Establishes Fine Train.

ON February 25th, the New York, New Haven and Hartford put into service one of the most magnificent trains in operation in the country. This train which is known as the "Merchants Limited," runs between New York and Boston, leaving Grand Central Terminal at 5 P. M. The train, which is composed of all steel equipment consists of parlor, smoking, dining and observation cars, which have just been delivered by the Pullman Company. The upholstery is of tapestry, the lighting system is indirect electric, and the seats and ventilation are of the most approved type. State rooms have been eliminated, giving 36 seats instead of 28 in the parlor cars, the observation smoker is finished in cocoa wood and has 40 leather chairs, and a buffet and electric stove.

New Haven Directors Authorize Lease.

THE Board of Directors of the New York, New Haven and Hartford Railroad Company have authorized President Mellen to negotiate a lease of the lines of the Northampton division, north of Westfield, Mass, to the Boston and Albany Railroad. The details of the proposed lease have not been worked out, but if it is possible to make a satisfactory arrangement the Boston and Albany will thereby secure entrance into Holyoke, Eastampton, Northampton, Turners Falls and Shelbourne Falls. The Board of Directors of the New Haven also authorized President Mellen to negotiate a lease of the trolley lines connecting New London and East Thompson, Conn., now owned by the Connecticut Company to the Shore Line Electric Railway Company. The terms and conditions of this lease are subjects for future negotiations.

Cause of Heavy Loss in Damage Claims.

THE investigation which has been conducted by the Chicago and North Western during the last year as to the reason for the large loss and damage claims annually paid by the railroad with respect to freight shipments, brings out some interesting facts. While less than carload freight tonnage comprised only 5.7 per cent of the total tonnage and developed 21.5 per cent of the aggregate revenue, the loss and damage claims paid, arising from this class of freight, represented 53.7 per cent of the total claims of this character. The reasons ascribed for this condition are that less than carload freight is as a rule higher in value and in addition is more subject to careless handling en route. Steps are being devised to decrease the loss through the mishandling of such freight by employes.

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Railroads Installing Sanitary Drinking Cups.

PRACTICALLY all of the railroads in the country are preparing to comply with the Interstate Commerce Commission's recent ruling prohibiting common drinking cups on interstate trains. The Pennsylvania, the Reading, Baltimore and Ohio and other systems are putting in devices to furnish individual paper drinking cups on all trains, while a number of roads are placing spouting fountains in the stations. In many cases the old common drinking cups are being abolished on local trains which are technically not subject to the Interstate Commerce Commission.

Efficiency of Car Operation.

ACCORDING to the compilation of the American Railway Association, the average mile traveled per day of freight cars on the railroads of the United States and Canada reached a high water mark for the month of November last. The average distance each car was moved during that month was 26 miles, compared with 24.4 miles in November, 1911. The month is unusual, moreover, in that it does not show the usual decline in efficiency over the showing for the month of October, which almost invariably occurs.

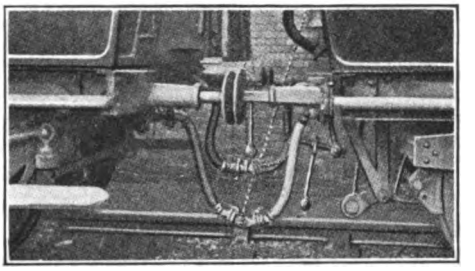
Unusual Operating Conditions During the Past Winter.

IT is unlikely that the present generation of railway officials will ever witness such a sharp contrast in operating conditions as has prevailed this winter and last winter. The winter of 1911-12 was one of the most severe that has ever been experienced, the weather being not only unusually cold but the difficulties of operation from snow being long continued and widespread. On the other hand the winter just closed has been unusually mild. With the exception of the last week of February there has been no severe weather this winter throughout the West, although a number of storms have occurred in the Southwest and Pacific Northwest which have made trouble for brief periods. The notably open winter has saved the transcontinental lines in the Northwest on the average $1,000,000 each in operating expenses, while the mild weather has brought about a beginning of the spring track work on the Western roads about a month earlier than is usual.

Cutting Trains When Running at High Speed.

AMERICAN operating officials are interested in the practice recently inaugurated upon the Great Western Railway of England, of cutting a train in two when running at high speed, allowing the rear portion to stop at some designated point. This practice was instituted in order to avoid making a stop at Exeter by the "American Mail" and other fast trains, and its operation is interestingly described in the *Railway Man's Magazine*. Through the use of this device, it is now possible for the company to run this train from London to Plymouth—a distance of over 225 miles, without a stop—in 245 minutes. One or two cars, or as many as may be needed, are cut off the train, while running at full speed, at Plymouth, or such other points as occasion may require.

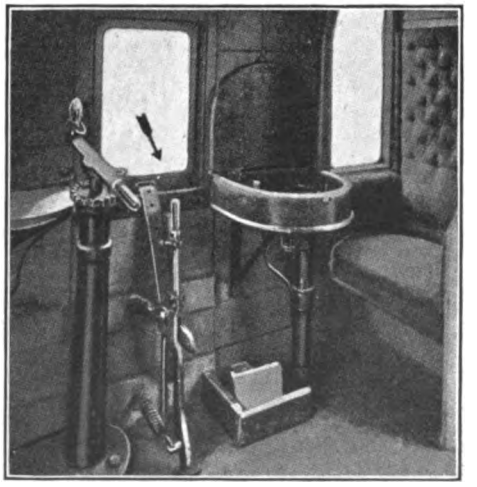
The inauguration of the practice of cutting a high-speed train in two, while running, was viewed with disfavor at first by the British Board of



(Courtesy of the Railway Men's Magazine.)

A VIEW OF THE "SLIPPING" APPARATUS EMPLOYED ON THE GREAT WESTERN RAILWAY OF ENGLAND.

Trade, but experience has apparently demonstrated that this can be safely done. The method by which this is accomplished is shown in the accompanying illustrations. It will be observed that the couplings between the cars contain what is referred to as the "slipping" apparatus, which, in reality, is but little different from the ordinary coupling device in the passenger service in this country. In conjunction with this slipping apparatus, however, there is installed a system of levers in the car, by which it is possible for the brakeman to slip the coupling whenever desired. When the train approaches the point where one or more cars need to be cut off the engineer is instructed to look to the rear of his train. The brakeman at the same time waves a green flag, which indicates that he is ready to cut off the required number of cars. When the engineer receives this signal, he shuts off steam. This causes the buffers to close up, as the rear cars of the train push slightly against the fore part in the manner well known to all operating officials. When this occurs, the brakeman, after shutting off the valve in the air-line, drops his lever, disconnecting the coupling and dividing the train. The engineer puts on steam and resumes speed, while the brakeman brings the cut-off rear portion to a gradual stop in the station.



(Courtesy of the Railway Men's Magazine.)

THE TRAINMEN'S CORNER IN A "SLIP COACH." THE ARROW POINTS TO THE LEVER THAT OPERATES THE "SLIPPING" APPARATUS AND CUTS OFF THE CARS.

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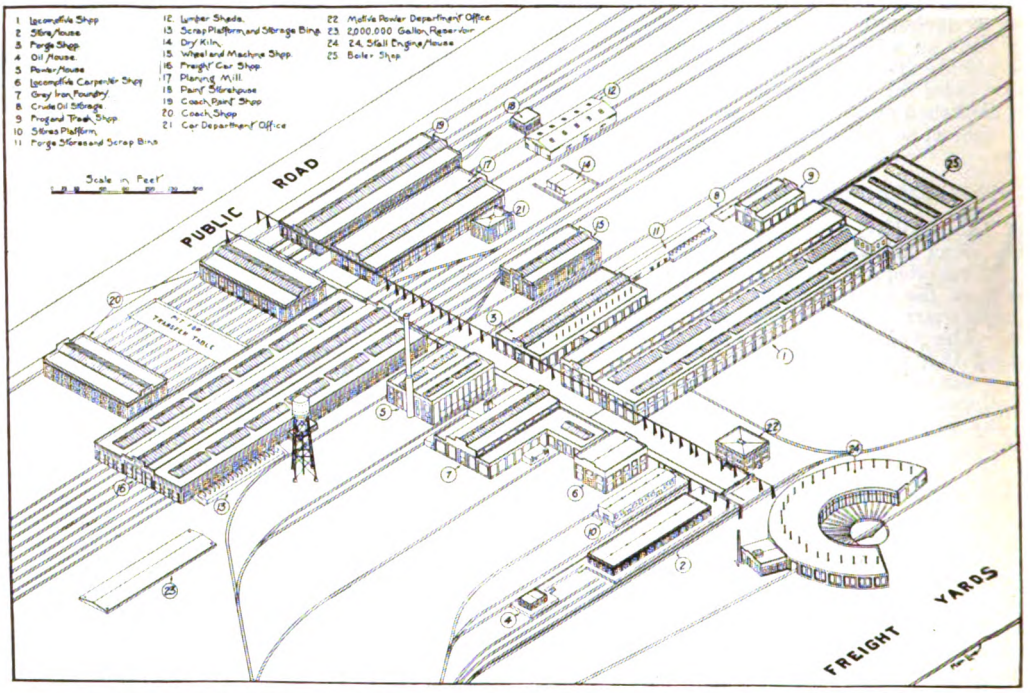
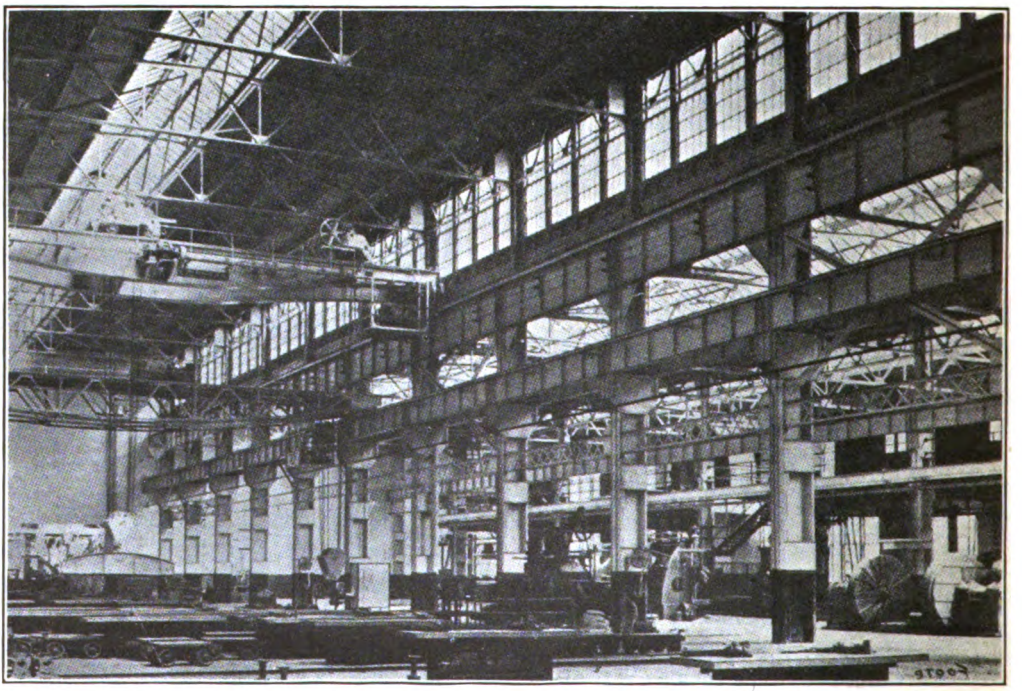
Mechanical

The New Railway Shops at Transcona, Manitoba.

BRIEF reference was made in the March issue of the RAILWAY WORLD to the completion and successful opening of the Grand Trunk's new railway shops at Transcona. Through the courtesy of *Canadian Machinery*, we are now able to present several illustrations which will



LAY-OUT OF EXTENSIVE RAILWAY SHOPS RECENTLY COMPLETED AT TRANSCONA, CANADA.



UPPER END OF LOCOMOTIVE ERECTING SHOP SHOWING 120 TON CRANE AND ONE TEN TON MESSENGER CRANE.

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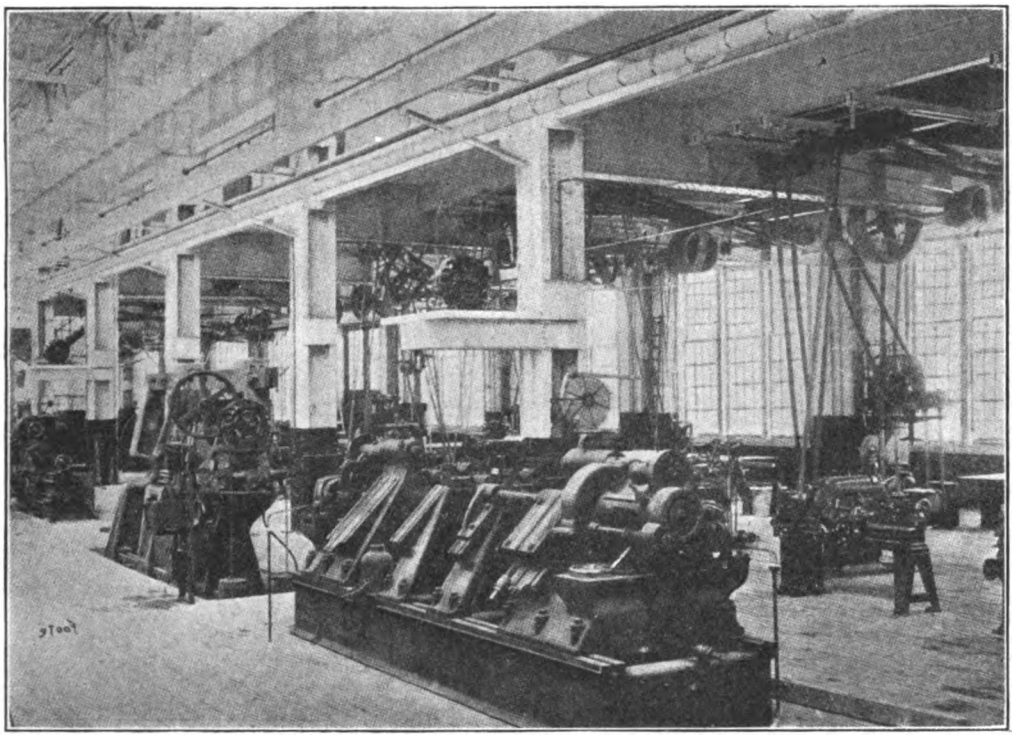

VIEW IN MACHINE SHOP.

give our readers a clearer idea of the remarkable work which has been accomplished in the building of these shops which represent, both as to size and completeness, one of the finest aggregations of buildings of their kind on the North American continent. It has taken about four years to complete the work, and the buildings cover an area of somewhat more than seventeen acres.

All buildings have self-supported steel frames standing on re-enforced concrete footings. The walls are of concrete up to the window sills and rest on wide concrete footings. Above the window sills, the walls are of white brick, carried up into a parapet wall on all four sides of the building, and topped with a coating of concrete. The lay-out of the buildings as shown in the illustration, is of particular interest to railway officials and indicates how carefully planned, along scientific lines, has been their individual and collective locations. All departments are connected by telephone, and ample fire protection is afforded by two one thousand gallon Underwriter fire pumps in the power house, from whence a complete system of piping is distributed throughout the plant. It will also be noticed that the grouping of the shops has been arranged as compactly as possible in order to facilitate intercommunication in winter. Space does not permit a description or study of the marvelous equipment of tools, machines, cranes, etc., which have been installed, but it is of interest to note that the United States is responsible for about 40 per cent of the machine installation, Canada 37 per cent and Great Britain 23 per cent.

Both the National Transcontinental Railway Commission and the Grand Trunk Pacific are to be heaartily congratulated upon the completion and successful opening of these magnificent shops. They represent the latest and best ideas in shop construction and methods and will undoubtedly play an important part in maintaining an efficient transportation plant for that great part of the Canadian Northwest whose future prosperity is vitally dependent upon a progressive railway policy.

THE LITTLE SALMON RIVER VIADUCT OF CANADA

IN building the Little Salmon River viaduct on its line between Moncton and Edmunston, the National Transcontinental Railway of Canada has completed a task of more than ordinary proportions. The valley of The Little Salmon River at the point at which the viaduct is built, 185 miles from Moncton, shows a crossing over 4,000 feet long with a height of 200 feet above the water line.

In many ways the bridge is a remarkable structure. The line approaches the east end with six degree curve through a rock cutting and crosses on a tangent, the grade falling 0.40 feet per hundred. The viaduct consists of twenty-four towers 58 feet 9 inches centers and twenty-five intermediate spans 100 feet 3 inches center to center, the end spans being 100 feet 10½ inches center of bent to outer end of steel. All the tower spans

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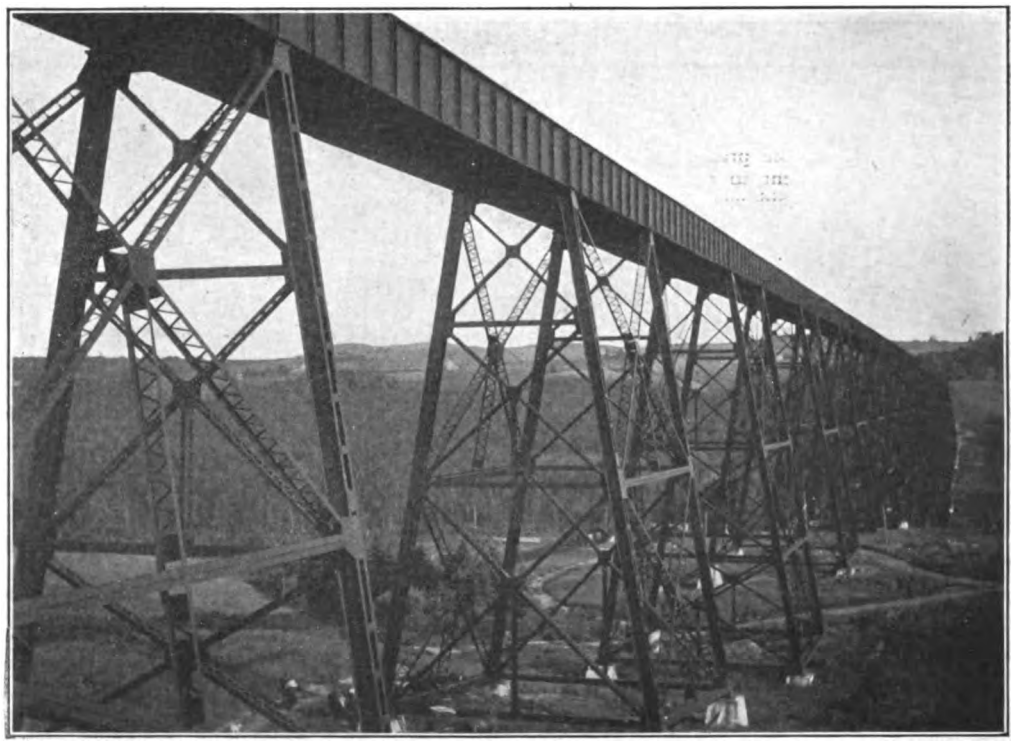

THE LITTLE SALMON RIVER VIADUCT BUILT BY THE NATIONAL TRANSCONTINENTAL RAILWAY OF CANADA.

are alike and also the intermediate spans, except that the masonry ends are extended to give the required bearing.

The towers and bracing are made alike as much as possible, necessitating one set of templates only for the spans and parts of towers which duplicate each other. A through girder system of construction was adopted, the girders being spaced 17 feet 6 inches center to center while the floor beams with gussets were spaced 14 feet center to center along the plate girders. The east end span is on a spiral to a six-degree curve and in consequence the girders are deflected at this abutment 1 foot 3 inches off the tangent to the structure produced.

METHOD OF RAISING AND MOVING RIVETING GALLERIES.

The approach at the end of the bridge is through a rock cutting, and, in order to avoid building the steel work on a curve, and also to utilize the material in the cutting without waste, an abutment of reinforced concrete placed on top of the rock fill, was decided on. A buried pier built from the original surface at this point would have been over 100 feet high, difficult to design and build, and very costly. This was avoided by the use of a bank abutment. The concrete was reinforced to prevent danger of cracks from settlement in the bank, and in order to give time for the bank to settle, the ends of the girders were temporarily supported by a crib work of square timber, before building the permanent abutment.

In the design of the pedestals and west abutment, borings and test pits were first made to determine the character of the soil. This proved to be of compact sand, gravel and hard pan, so that no piling was required, the footings being designed to distribute the load at a pressure of from 2.5 to 4 tons per square foot. The four pedestals near the water line at the banks of the river were built with curved cutwaters, the axis of piers being parallel to the direction of the current, forming suitable icebreakers. The anchor bolts for pedestals consisted of two rods, two inches in diameter, the lengths varying according to the up-lift to be resisted. These rods were anchored at the bottom by spacers of 10-inch channels and washes, the concrete being built around them.

In order to give room for a little variation in

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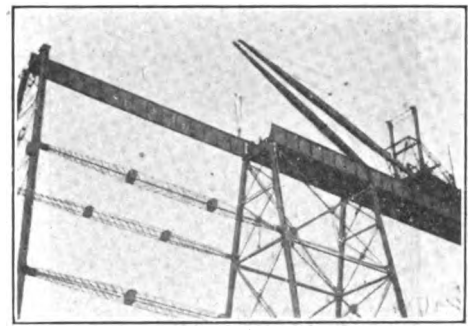
their position, conical forms were set around each bolt, a lip being left at the top extending beyond the base plate of column through which these voids were filled with grout after the steel was erected. The west abutment or buried pier was about 40 feet in height above the footing course, and in order to reduce the pressure on the soil and allow the embankment to run through and surround it, an arched void was left in a longitudinal direction.

The main feature of the erection outfit was the 30-ton two-boom erection derrick, traveling on the top of flanges of the girders, the trucks of the traveler running on 115 pounds of crane rail, the base of which rested on timber temporarily secured to the girder flanges.

This derrick was self-propelling by means of a chain and sprocket connecting the trucks with the erecting engine. After a tower and its girders were assembled the erection struts were removed and used again to stiffen the first bent of the next tower until it too was connected and self-sustaining. The hook bolts temporarily connecting the ends of the three struts with the columns proved very efficient.

One of the important features was the use of riveting bridges for the convenience and safety of the men in assembling, riveting and painting. They were carried along the top of the trestle by the two boom yard derrick car, and after being secured to the top flanges of girder by hooks,



PLACING A HUNDRED FOOT GIRDER.

the cages were lowered or raised by hand, as required, the free end of the tackles being on the platform so that the riveters could slack away themselves.

It is stated that the riveting gangs averaged 302 rivets per day of ten hours per gang, a rate which would probably have been reduced by 50 per cent if ordinary staging had been used, instead of the riveting cages. A pair of 100-foot girders were swung and bolted in their final position in 37 minutes, and floor beams and stringers assembled in half a day.

HOPPER BOTTOM GRAIN CAR

MR. J. COLEMAN, Superintendent Car Department, on the Grand Trunk Railway System, whose device for holding the bodies and trucks of cars together so as to prevent telescoping in case of accident is described elsewhere, also has to his credit the invention of the only successful hopper bottom grain car upon the American continent.

Hopper bottom cars which unload coal almost instantaneously have been in use for some time but the problem of devising a practical door which would prevent grain from escaping has hitherto baffled solution.

The "Coleman" steel hopper bottom box car No. 9950 has been in service for trial on the Grand Trunk between Midland and Portland during the past twelve months and the results have so far been eminently satisfactory. The

NEW HOPPER BOTTOM GRAIN CAR SUCCESSFULLY EMPLOYED FOR THE PAST YEAR ON THE GRAND TRUNK RAILWAY.

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INTERIOR OF GRAIN HOPPER CAR.

car has a perfectly level and tight bottom and is in every way the same as an ordinary box car except that it completely dumps grain, coal or any similar produce in a few seconds. It is used eastbound with grain and west bound in return movement with coal and the loading with coal does not appear to unfit the car in any way for grain service.

In August, 1911, the United States Government issued three patents covering this car and three similar patents have been issued in Canada. The following table gives the interesting comparison between the Coleman patent grain car and a Standard grain car:

Particulars	Coleman Car	Standard Car
Carrying capacity	1.833 bus.	1.100 bus.
Tare	48.000 lbs.	37.000 lbs.
Load	110.000 lbs.	66.000 lbs.
Total Load	158.000 lbs.	103.000 lbs.
Carrying capacity in tons to one ton of tare weight	2.29 tons	1.73 tons
Ton miles—Tare	16.728 "	12.894 "
Ton miles—Load	38.335 "	23.001 "
Ton miles—Total	55.063 "	35.895 "

Rate per bushel for 697 miles—Coleman Car, 5 cents; Standard Car, 5 cents.

Rate per ton of grain for 697 miles—Coleman Car, $1.66½; Standard Car, $1.66½.

Rate per ton, mile, load, for 697 miles—Coleman Car, 239 Mills; Standard Car 239 Mills.

Rate per ton mile, load and tare, 697 miles—Coleman Car, 166 Mills; Standard Car, 153 Mills.

Earnings on car of grain, 697 miles—Coleman Car, $91.65; Standard Car, $55.00.

Earnings on car of coal, 149 miles—Coleman Car, $54.02.

Total earnings on grain and coal—Coleman Car, $145.67; Standard Car $55.00.

Earnings on train of 1,200 tons, including grain and tare, 697 miles—Coleman Car, $1,388.42; Standard Car, $1,281.36.

Earnings on seven trips, 400 miles; five trips, 697 miles; two trips, 149 miles—Coleman Car, $1,207.84; Standard Car, $660.00.

Cost of carrying of grain, 697 miles at the rate of two Mills per ton mile-load, although the average for all classes of weight is four Mills—Coleman Car, $76.67; Standard Car, $46.00.

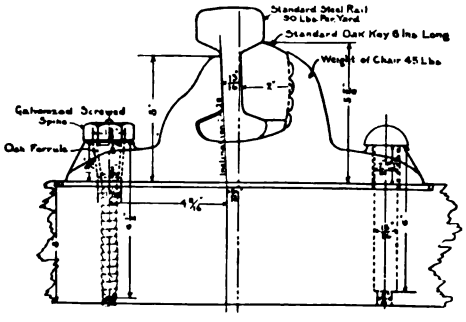
Cost of carrying of coal, 149 miles at three Mills per ton mile load, although the average for all classes of freight is four Mills—Coleman Car, $24.67.

Total cost of carrying car of grain 697 miles, and car of coal 149 miles—Coleman Car, $101.34; Standard Car, $46.00.

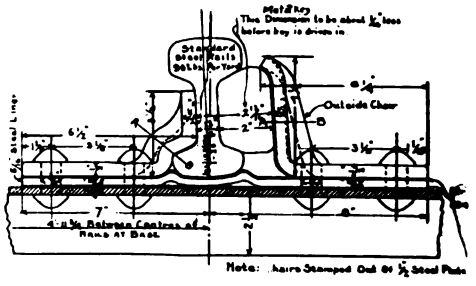
MEMORANDUM CONCERNING THE USE OF ENGLISH TRACK ON THE PENNSYLVANIA RAILROAD

IN the current bulletin of the American Railway and Engineering Association occurs the first publication of the experience of the Pennsylvania Railroad in the experimental use of track installed in a manner similar to that used in Great Britain. It is in the form of an article by Mr. Joseph T. Richards, chief engineer of maintenance of way.

In England the rails are not attached to cross-



STANDARD RAIL, CAST IRON CHAIR AND WOODEN SLEEPER.



STANDARD RAIL, STEEL SLEEPER AND CHAIRS.

ties by spikes as they are in this country. Instead, there is a metal shoe enclosing the rail, rigidity being secured by two wooden blocks hammered between the shoe and the rail.

Mr. Richards makes a careful and detailed analysis of the experience of the Pennsylvania Railroad with the English rail, and then sums up the case as follows:

"In the middle eighties, Mr. Frank Thomson, then second vice-president of the Pennsylvania Railroad Company, while abroad became interested

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in the question of the comparative merits of English and American track.

"He accordingly authorized the purchase of two miles of London and North Western Railroad standard track for a trial in comparison with American standard track under American conditions.

"In order to give the track a fair trial it was distributed among the four main line divisions (one-half mile to each), so that it would have different roadbed, different climate, and different men to care for it, watch and record its performance and make the final decision, which was thought to be the most impartial way of making the test of this track as compared with ours. The New York division has a sandy, well-drained roadbed, the Philadelphia division runs through a loamy, rich farming section, while the Middle and Pittsburgh divisions are in mountainous and rocky country.

"There was also a discussion at that time as to the comparative merits of track laid with metal and wooden crossties. For this reason, in one-half of the two miles, metal ties were used and wooden ties in the other half. Also, metal keys were used with the metal ties and white oak keys on the sections laid with wooden ties.

"The trial was made on first class roadbed with stone ballast, with the result, as shown in the report, that the English track did not last as long as the American type (the former having an average life of five years and the latter ten or more years), that the metal ties were not as satisfactory for holding the track in line and the metal wedges failed and had to be replaced with wooden ones and the metal ties did not last as long as the wooden; also, that the metal in the English rail did not last as long as the metal in the American rail.

"The cost was about twice as much (both first cost and cost of maintenance) as that of Pennsylvania Railroad standard track.

"These English rails are carried in chairs and held in place by a wooden key, six inches long, driven between the rail and the chair. The connection between the metal crosstie and the chair is riveted. In the wooden tie it is made by lag screws and drive-bolts—all as shown on plans herewith.

"The crossties of both kinds are nine feet long, those of wood being ten inches wide by five inches thick. In this instance the Pennsylvania Railroad standard white oak crosstie, 8½ feet long, of selected width, was used. In both types ten ties are laid to every thirty feet.

"Being $200.96 per year per one-half mile, or about $402 per mile per year for the English, and $103.48 per year per one-half mile, or about $206.96 per mile per year for the American rail.

"The experience with the English type of track on the Pennsylvania Railroad was unsatisfactory and so much so as to be almost annoying.

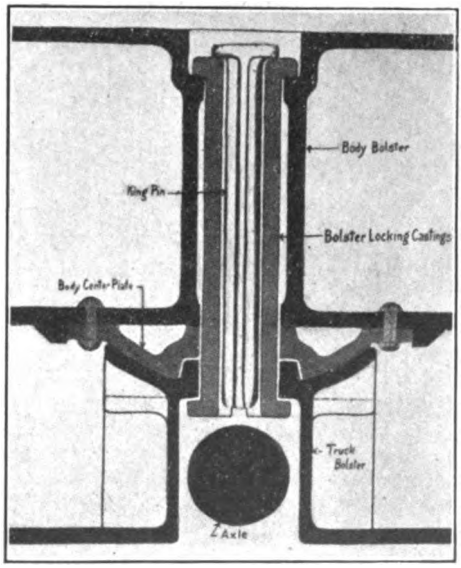
"The difficulties encountered were the same on all divisions—the trouble in keeping track to true line and surface; creeping of the rails; loosening of the wedges; wide gauge on account of wearing of rails, particularly on curves; and the constant care and expense incidental thereto. The rails, however, were shown to be of good material."

CAR BODY LOCKING DEVICE

At a recent meeting of the Western Railway Club, Mr. J. L. Hodgson, of the Grand Trunk Railway, gave a description of a device recently adopted by his company for the purpose of holding the car bodies to the truck and thus lessen the chance of telescoping in wrecks or collisions. The device is simple in construction, consisting of two steel keys passing through the center of the body and truck bolsters which is accomplished by increasing the area of hole in the center plate and bolsters and inserting the two perpendicular keys referred to which have flanges top and bottom for locking over the top of body bolster and under bottom of truck bolster. These keys are separated or spread apart by the insertion of practically the ordinary king pin.

By this simple means, Mr. Hodgson claims that the Grand Trunk is able to largely overcome what is now considered one of the greatest dangers in the operation of trains. It is asserted that the locking device will not interfere in any way with the present flexible movement of the trucks, provision having been made to provide sufficient clearance without interference; and, furthermore, it can be applied to any passenger car. The two flange keys inserted in the hole, when spread apart, lock over the top of body bolster and under truck bolster before the king pin can be inserted, and when the king pin has been dropped between the two expanded keys the recess or opening between these keys is taken up with rib on the king pin, thus making the king pin and the two keys virtually one king pin, locking the body of the car and the trucks with the two flanges on the vertical keys.

A further special reason for the employment



DEVICE ADOPTED BY THE GRAND TRUNK RAILWAY FOR HOLDING CAR BODIES TO TRUCK.

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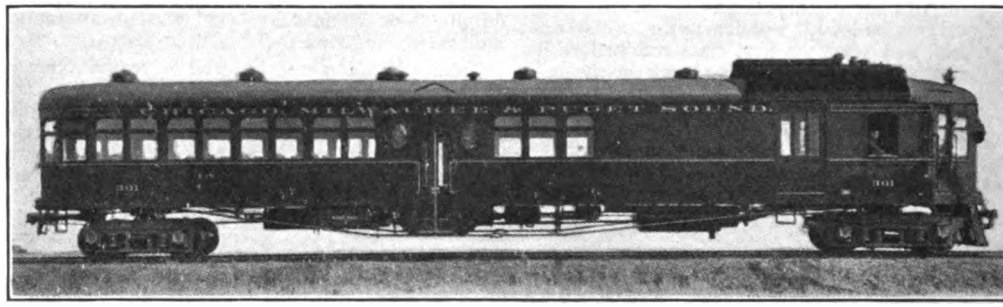
of the device is that in lowering the body of the car on the trucks, after repairs have been made, it is impossible for the car repairer or the ordinary laboring man to make any mistake in the locking of the car body to the trucks, for the reason that by putting the keys through the opening of the bolster and center plate, they must lock top and bottom before the king bolt can be admitted, which, in turn spreads the keys over top and bottom flanges.

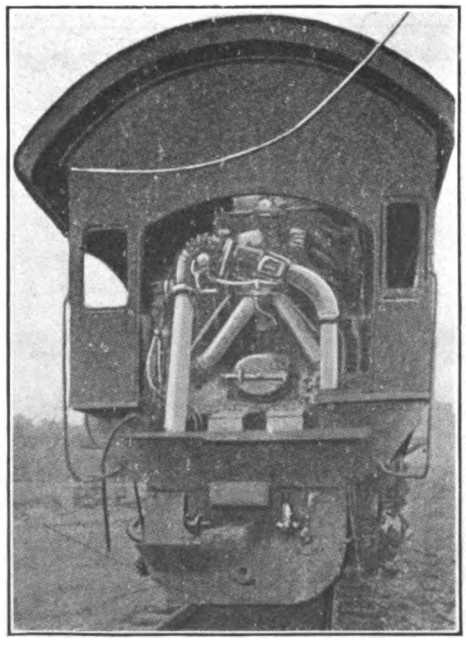
The device, which is shown in the accompanying illustration, is being applied on a large number of new passenger cars for the Grand Trunk Pacific and Grand Trunk Railways and will be standard on all passenger equipment for both roads.

ST. PAUL RECEIVES NEW GAS-ELECTRIC MOTOR CARS

THE Chicago, Milwaukee and Puget Sound Railroad Company, which is the Western subsidiary of the St. Paul system, owning the transcontinental line to the Pacific Coast, has recently placed in service, on its branch lines, two General Electric gas-electric motor cars. These cars, the general appearance of which is shown in the accompanying illustration, are of the combination passenger, smoking and baggage compartment type, with turtle-back roof. They are approximately 70 feet long, have a seating capacity of seventy-seven people, and weigh fifty tons. The power generating equipment consists of an eight-cylinder, four-cycle gas engine, of the "V" type, direct connected to a 600-volt commutating-pole electric generator, specially designed to meet the requirements of the service conditions encountered. The engine is started through a storage reservoir filled by an air compressor direct driven from the crank shaft to the engine. The car is propelled by two General Electric 600-volt, 100 horsepower motors. These cars were sent, under their own power, from the shops of the manufacturing company to the headquarters of the purchasing road. On the trip, one of the cars negotiated 103 miles in two hours and ten minutes. In another case, twenty miles of 2.2 per cent grade was negotiated in fifty-six minutes, with one stop.



GAS-ELECTRIC MOTOR CAR FOR BRANCH LINE SERVICE ON THE CHICAGO, MILWAUKEE AND PUGET SOUND RAILROAD.



GENERAL APPEARANCE OF STREET AUTOMATIC STOKER AS APPLIED TO A LOCOMOTIVE.

THE PROBLEM OF THE AUTOMATIC STOKER

MR. A. G. KINYON, chief instructor for the Street Locomotive Stoker Company, read an interesting paper at a recent meeting of the Richmond Railway Club, upon the experience thus far secured with this device. He stated that fifty-four of these stokers are now in operation on the Chesapeake and Ohio Railway and that forty Mallets were equipped with stokers on the Norfolk and Western. The Baltimore and Ohio have seventy-one locomotives equipped with this device, of which twenty are Mallets and fifty-one Mikados. These companies adopted this type of mechanical stoker after preliminary tests upon one or more locomotives, which proved satisfactory. Mr. Kinyon's talk was illustrated by a number of lantern slides, showing the various features in connection with the stoker and some of the advantages claimed for it. Many of these illustrations are reproduced in the proceedings of the Richmond Railway Club. We reproduce herewith a photograph showing the general appearance of the stoker as attached to the locomotive.

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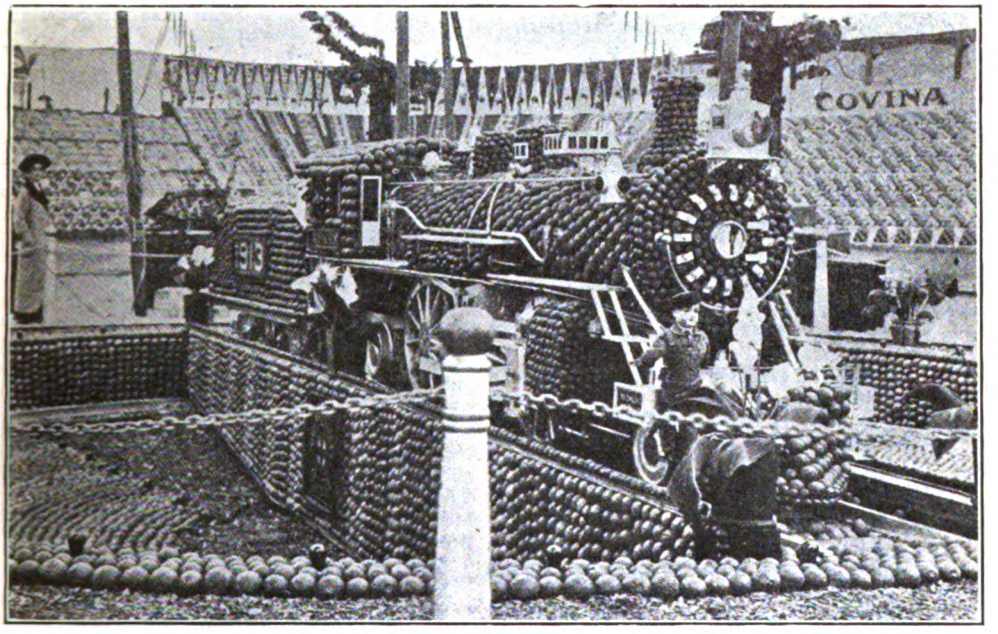
CONSTRUCTIVE WORK IN PROMOTING TRAFFIC

IT is interesting to note the progress which is constantly being made in constructive railway advertising. The work of advertising for passenger business has been highly developed, and is familiar to everyone through the excellent examples which are found in practically every magazine and newspaper. Corresponding progress has also been made by many companies in promoting freight traffic through intelligent publicity work. A recent example of such work is an exhibit by the Santa Fe at the Third National Orange Show, at San Bernardino, California, the main feature of which is shown in the accompanying illustration. The Santa Fe system hauls in a year about 40,000 carloads of citrus fruit, or about 60 per cent of the crop in California. The handling of traffic having a selling value of about $30,000,000 is one of the most important items of the traffic of this company. The purpose of the exhibit is to impress upon the visitor at the show the importance of the industry, and the place which the Santa Fe occupies in it.



A PRIZE WINNING SANTA FE ENTRY AT THE THIRD NATIONAL ORANGE SHOW HELD AT SAN BERNARDINO, CALIFORNIA.

Latest Type of Refrigerator Cars.

THE American Car and Foundry Company has delivered an order of seventy-five steel underframe refrigerator cars for express service to Wells, Fargo and Company. These cars are intended for operation in the passenger service, weigh complete 86,000 pounds, and have a capacity of 60,000 pounds of freight, and 14,000 pounds of ice. Particular attention has been paid in this equipment to the question of insulation. There is riveted to the underframe members a layer of No. 16 galvanized iron, over which is applied a course of ⅛-inch asbestos paper. Above this is an air-space, on top of which is 13-16-inch deafening floor, on top of which is laid a layer of ½-inch Keystone hair felt, held in position by ⅞-inch wood furring. On the furring in turn is nailed a single course of ⅛-inch yellow pine. On top of this is two additional courses or layers of hair felt, nailing strips and yellow pine, over which, finally, is laid the main floor and sides of the car.

The cars are equipped with the Bohn system of refrigeration, and with all-steel collapsible bulkheads. The undersills are caststeel, while the underframe has two center and two side sills of the fish belly type.

Chrome-Vanadium Tender Wheels.

AN interesting contribution to the current information concerning the subject of the advantages of chrome-vanadium steel in various work has been furnished by the Vandalia Railroad. This company has for some time kept comparative service records of chrome-vanadium and carbon steel wheels, under passenger tenders, carrying an average load on each wheel of about 17,000 pounds, when the tender is loaded. The results thus far obtained, representing 3½ years of service, show that the chrome-vanadium wheels give about 2½ times as much mileage as the carbon steel wheels. Up to the present time, chrome-vanadium wheels have, under observation, made 300,000 miles, and it is expected they will safely reach 400,000 miles. In addition to the greater wearing qualities of the wheel, they possess the advantage of a much smaller loss of wearing surface when it is necessary to turn them down in the lathe.

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New Haven to Test Automatic Train Stop Devices.

SOME time ago President Mellen, of the New Haven offered a reward of ten thousand dollars for a successful automatic train stop device. As a result 1,574 ideas and devices were submitted, 90 per cent of which were rejected as being absurd on their face. The company's engineers, after making a careful study of the more meritorious, have narrowed the list down to two devices which are to be given a practical service test. Neither of these is regarded as perfect, but it is hoped that through experimentation they may be perfected to a state of proficiency which will warrant their introduction. The conditions attached to the reward are that the inventor is to be assisted by the New Haven with money and the use of tracks and equipment under the supervision of the company's signal engineer. The patent is to remain the property of the inventor but the New Haven is to have the right to use it on all of its lines without further payment than its reward. A further condition of the reward is that the device must be adopted for general use by the New Haven, New York Central or the Pennsylvania before the end of 1916.

Lackawanna to Experiment with Wireless Telegraph.

THE Lackawanna Railroad is about to undertake a series of experiments with wireless telegraph apparatus at its stations in Scranton, Pa., and Binghamton, N. Y. The thought is that if the wireless apparatus proves successful other stations will be subsequently equipped. It is not intended to use the wireless stations in place of telegraph, but rather as an emergency aid to it either when the lines are disabled through accidents or thunder storms or in emergencies when the operator cannot get the proper connection over the telegraph line.

New Haven to Install Longer Crossovers.

IT is announced that the New York, New Haven and Hartford Railroad will rebuild 78 crossovers on the main line between New York and Boston, installing crossovers of longer radius, and also 36 interlocking plants between the same points. This work is in compliance with the recent order of the Connecticut Public Utilities Commission. The cost of the changes and additions will be about $1,250,000. Estimates of the requirements for ties for the coming year indicate that this company will use about 500,000 new ties more than has heretofore been placed in the tracks.

New Grade Crossing Law in New Jersey.

IN spite of the protest of President Rea, of the Pennsylvania System, to the Governor of New Jersey, that official has signed the bill passed by the Legislature providing for the abolition of grade crossings in that state, at the sole expense of the railroad. It is believed that this action marks the beginning of a bitter legal struggle on the part of the railroads to have the law set aside as confiscatory. President Rea, in his protest, pointed out that his company in the last twenty years had elevated its tracks through every large city in the State and had eliminated 110 crossings at a cost of $8,000,000. There remained some 1,200 grade crossings on the Pennsylvania System in the State, the removal of which would cost $60,000,000, "an expenditure which would neither produce additional revenue nor decrease expenses."

The flat contour of the State has made grade crossing almost inevitable. President Rea advocated a law which would establish a commission or give the Public Utility Commission the power to determine when a crossing should be removed and what proportion of the cost thereof should be borne, respectively, by the railroad and the municipality.

Increased Efficiency from Use of Superheated Steam.

SOME very interesting information concerning the increase in locomotive capacity, secured by highly superheated steam, was furnished by Mr. Gilbert E. Ryder, sales engineer of the Locomotive Super-Heater Company, in a paper read before the Western Railway Club at a recent meeting. Beginning with the statement that only about 70 per cent of the cylinder power, or indicated horsepower, of a locomotive is available when operated with saturated steam, Mr. Ryder proceeded to give the results of a number of tests which had been made to demonstrate the degree of superiority of superheated steam under varying conditions. He took first a modern Pacific type locomotive, in passenger service, running at various speeds of from 20 to 80 miles per hour. At eighty miles per hour, the efficiency of the superheated locomotive was about 33 per cent above that of the saturated steam locomotive. The maximum drawbar horsepower of the saturated steam locomotive was developed at 35 miles per hour, while the superheated locomotive developed its drawbar pull at 47 miles per hour. If the relative merits of the two locomotives are judged from a ton mile basis, the hauling capacity of the superheater shows a superiority of about 20 per cent.

The Use of Charcoal-Iron Boiler Tubes.

MECHANICAL engineers have for years recognized the superior advantages contained in charcoal-iron boiler tubes. The reasons for the use of this type of boiler tube were ably summed up by Mr. J. A. Kinkade before the New England Railway Club at its February meeting. The history of the manufacture of this type of tube was outlined, the successive steps which have occurred in the improvement of the manufacturing process, and the type being fully explained.

According to Mr. Kinkade, the economies resulting from the use of carcoal-iron boiler tubes are the result of, first, the purity of the iron, and the freedom from segregation, which assures greatest resistance to pitting; second, the slag coating protects the fibres of iron, and assures greatest resistance to corrosion; third, such tubes work readily, weld readily, wear for a long period, and do not deteriorate in service, and fourth, they are not crystalline, and they do not crystallize with use or abuse.

In the discussion following the paper, superintendents of motive power and mechanical engineers cited many instances where such tubes have given satisfactory service for from ten to fifteen

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years, while scattered instances of twenty years of service were offered. In the discussion, it was suggested that it would be very advantageous if manufacturers of tubes would adopt some distinctive stamp or mark, which would be placed upon each tube turned out, so that the users of tubes could ascertain at any time who was the maker of any particular tube. The ordinary practice of stenciling charcoal-iron boiler tubes with whitepaint is a reasonably satisfactory method of identification before they are installed, but after they have been used, this marking quickly disappears.

Mr. Gilbert E. Ryder, of the Locomotive Super-Heater Company, was called upon to discuss the question of the relative desirability of steel and charcoal-iron tubes in superheater locomotives. He stated that the results, which were secured on different roads varied to such a high degree that it was impossible at the present time to make any satisfactory comparison.

Frisco Discards Oil Burners.

OUT of 160 oil-burning locomotives in operation on the Frisco System a year ago, only 25 are now using this type of combustion and this small remainder will be speedily reconverted into coal-burning locomotives. The change is made necessary by the almost prohibitive price of fuel oil. Fuel oil which was formerly a by-product of crude oil, the refining process dividing the crude product into 20 per cent gasoline and 80 per cent fuel oil. As a result of the tremendous increase in the demand for gasoline the refineries are extracting all of the gasoline possible out of the oil, with the result that there is only 20 per cent fuel oil remaining. This, together with the increase in the demand for fuel oil is responsible for the rapid rise in its price.

Electrical

Pennsylvania to Electrify Philadelphia Suburban Lines.

ON March 12th, the Pennsylvania Railroad announced that the Board of Directors had authorized "the taking of the second important step in the improvement of the Philadelphia passenger terminal, i. e., the electrification of the main line for suburban passenger traffic between Philadelphia and Paoli. It is expected that this improvement will be completed in 1914, and will involve a capital outlay of about $4,000,000. The first step of the terminal improvement, as previously announced, will be the construction of an eight-track station at North Philadelphia, and a new bridge crossing the Schuylkill River at Girard avenue." The rapid execution of this project depends, to a considerable extent, upon the co-operation of the city authorities, from whom consent will be required to close a portion of Filbert street, the railroad company now owning all the property on either side, within the districts so affected.

The main line of the Pennsylvania Railroad contains its most important suburban division, and serves one of the most attractive suburban communities in the United States. The electrification of this stretch is important, not only because of the suburban traffic, but because this section of road contains relatively heavy grades, which materially reduce the running time on through trains. In addition, a large volume of freight traffic is handled over this stretch. The use of electricity will eliminate a great deal of smoke and noise and will be of great advantage to the communities affected.

It is unofficially stated that the new suburban service will be of the multiple unit type, either using the overhead wire system or a third rail. All of the steel passenger cars built by the Pennsylvania within the last few years have been designed with a view to use with electric operation, so that it will not be necessary to purchase new equipment, other than the trucks, motors and electrical apparatus.

It is currently reported that the Pennsylvania is seriously considering the purchasing of power from the Philadelphia Electric Company, which supplies all of the electrical light and power in the city of Philadelphia, including a considerable part of the power necessary to run the street railway lines in that city, rather than generate its own power for this service. This is in line with the practice followed in a number of other centers. In view of the fact that the Pennsylvania some months ago established a class in electrical operation for its engineers and firemen, it seems probable that these men will be continued in the new electrified service. It has not been announced whether the through trains coming into and out of Broad Street Station will be handled by electric locomotives from Paoli eastward. It is understood, however, that the entire four tracks of the main line will be equipped for electric operation; this is necessary in order to properly handle the suburban service now offered.

We believe that the electrification of the main line is the first step in a general plan toward the electrification of all the suburban lines of the Pennsylvania in and around Philadelphia. It is currently reported in the Philadelphia newspapers that the Reading is about ready to announce plans to a similar end.

Pennsylvania's Experience in Maintaining Electric Locomotives.

MUCH discussion arose among mechanical engineers at the time the Pennsylvania announced its plans for its electric locomotives, used in connection with its New York Terminal, concerning the difficulty which would be encountered in maintaining this equipment, because of the use of side-rods. It was urged that it would be almost impossible to keep lost motion out of jack-shaft bearings, and that this would cause the locomotives to pound, with the result that they would speedily demolish themselves, and do damage to the roadbed. If this was to be avoided, it was prophesied that the locomotives would be in the shop a large amount of the time.

The Electric Railway Journal, in its issue of

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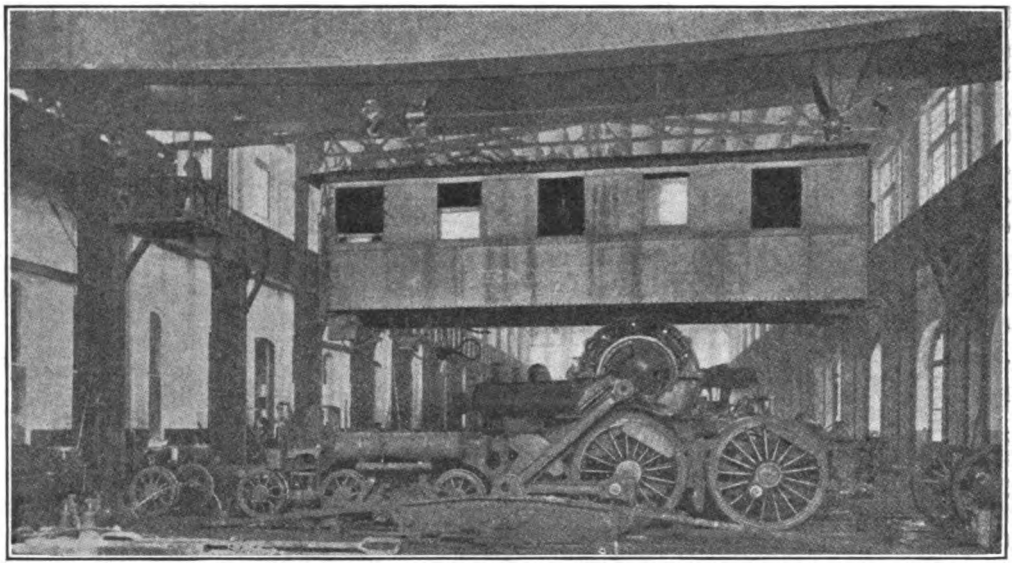
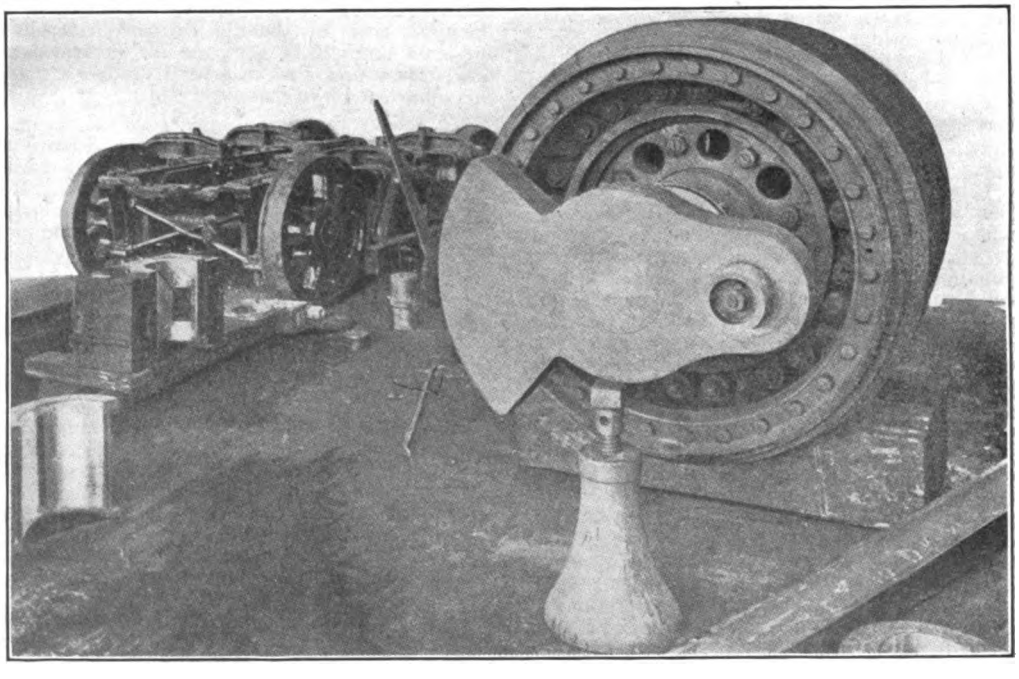


(Courtesy of *Electric Railway Journal.*)

VIEW OF CRANE IN MEADOWS SHOP, LIFTING CAB FROM A UNIT OF A PENNSYLVANIA RAILROAD ELECTRIC LOCOMOTIVE.

March 15th, publishes an interesting article on the maintenance of these electric locomotives by the Pennsylvania, and the experience thus far gained with this equipment. We reproduce herewith some of the illustrations accompanying this article. The Pennsylvania has found that not more than 1-16 inch lost motion can be permitted in the jack-shaft brasses. Considerable difficulty was met with in the early locomotives, but in the nine locomotives built last year, the design of the brasses was changed, permitting of an easier adjustment; and eliminating, to a large degree, the difficulties formerly encountered.

Experience has demonstrated the rather surprising fact that practically all the wear on the jack-shaft bearings takes place in a vertical plane This is explained on the ground that the weight of the locomotive tends to keep the jack-shaft at



(Courtesy of *Electric Railway Journal.*)

MOTOR ARMATURE AND STANDARD BOGIE TRUCK OF PENNSYLVANIA RAILROAD ELECTRIC LOCOMOTIVE.

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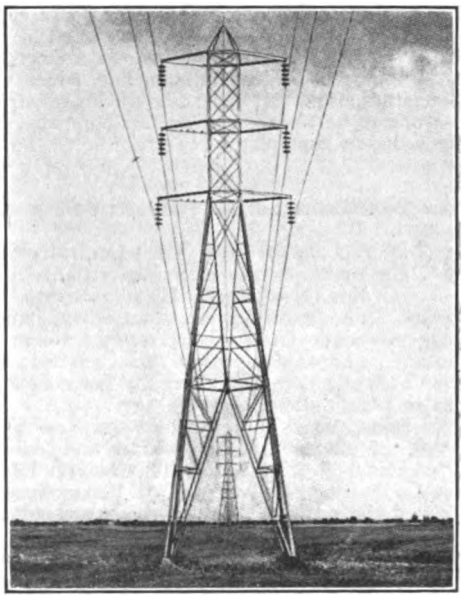
the bottom of the bearing, and presses down to a greater or less degree upon the shaft at all times. The wear of the jack-shaft must be taken up about every 3,000 miles. Heavy repairs to the locomotive are made at intervals varying from 40,000 to 60,000 miles, depending largely upon tire wear. About 40,000 miles is considered an average year's service, so that the locomotives are in shops at intervals of from twelve to eighteeen months. These locomotives are equipped for flange lubrication, the cost of such being about 56 cents per thousand miles. The maintenance cost of an electric locomotive unit, for the last six months of 1912, averaged 3.31 cents per mile, of which 2.45 cents represented mechanical maintenance and 0.86 cent electric maintenance. This cost includes all operating overhead charges, but does not include any charges for capital account, nor for charges due to repairs to buildings or machinery. The cost approximates the expenses which are encountered with an 80-ton steam locomotive in heavy high speed service.

St. Paul to Use Overhead Trolley System.

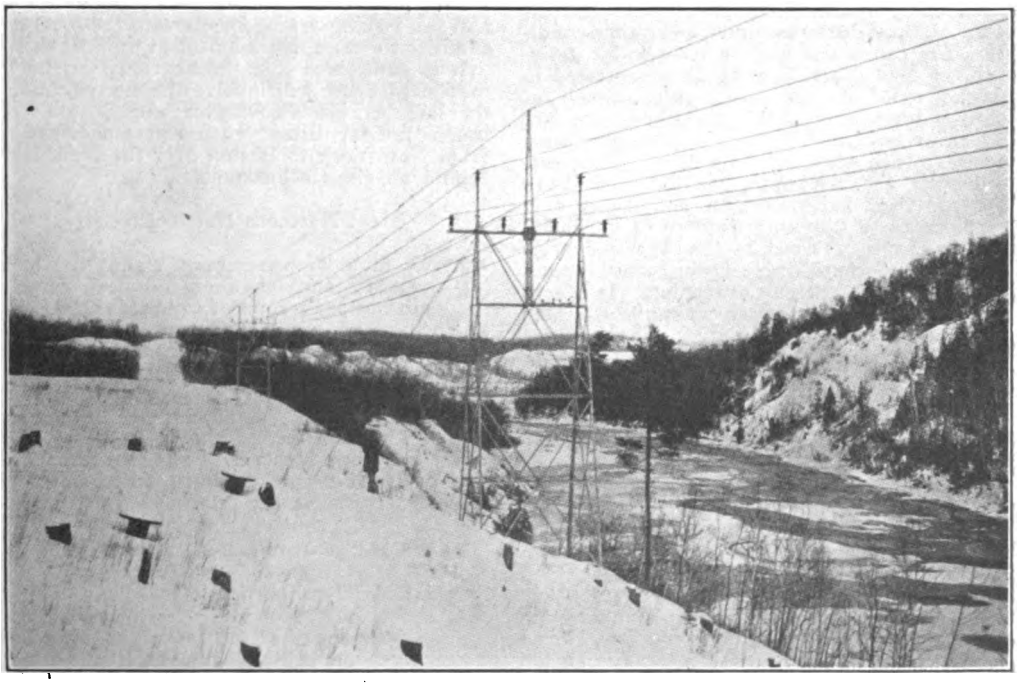
MR. C. A. GOODNOW, assistant to President Earling, of the Chicago, Milwaukee and Puget Sound Railroad Company—the Western subsidiary of the St. Paul—announces that it has been decided to use the overhead trolley system, the type of construction being very similar to that heretofore employed by the New Haven.

As has previously been stated in the RAILWAY WORLD, the company has decided to purchase fifty electric locomotives as the initial order, which are designed to perform the heavy work incidental to hauling trains over the mountain grades encountered. These locomotives are designed to pull a maximum freight tonnage of 2,100 tons up a one per cent grade. It is expected that on the heavy mountain work, the new type of electric motor to be used will run up to 300 miles without inspection, while the ordinary steam locomotive can run only



(Courtesy of the *Engineering Magazine.*)

DOUBLE-CIRCUIT STEEL TOWER TRANSMISSION LINE USING SUSPENSION INSULATORS, GREAT WESTERN POWER COMPANY.



(Courtesy of the *Engineering Magazine.*)

DOUBLE-CIRCUIT STEEL TOWER TRANSMISSION LINE USING PIN-TYPE INSULATORS, GREAT WESTERN POWER COMPANY.

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100 to 150 miles without overhauling. We show herewith the type of steel towers employed by the Great Western Power Company, in connection with its high-tension transmission line, which will indicate the permanent character of the construction work to be undertaken by this company, for the purpose of supplying power for the St. Paul's line.

New York Central Extends Electric Service.

ON March 2d, the New York Central placed in operation its electrified extension to Croton, New York. Up to this time, the electric zone extended to Tarrytown, where change was made from an electric to a steam locomotive. The new extension brings within the scope of the electric zone a rapidly growing suburban territory.

Vice-President J. H. Hustis, of the New York Central, in charge of the Boston and Albany Railroad, in appearing before the General Legislative Committee on Railroads of Massachusetts, explained the position of the Boston and Albany as regards electrification. He stated that "I am here also to ask whether the Boston and Albany shall be required to assume an annual net loss in its operation of at least $500,000 per year, as the result in such electrification; and if required to do so, what is to be the effect of such legislation, not only on the property but on the public which it serves?"

Interesting Run of Storage-Battery Car.

AN interesting trial run of a storage-battery car was made on March 6th, between New York and Boston. The car was equipped with a set of new high-power Edison storage batteries. The purpose of the run was to test the efficacy of these batteries under operating conditions. The car, which was on its way for delivery to the New York Central, to be operated in connection with its suburban service outside of Boston, is interesting in that the wheels are free on the axles, and rotate separately, the motor being attached to each wheel by chain drive. The route selected for the run was over the New York Central, Hudson River division, and thence over the mountains to Boston, a distance of 310 miles. The average speed attained by the car was over 30 miles per hour—considerably faster than the regular steam service between these points. It is estimated that the storage-battery car can be operated at a cost of 16 cents per car mile. The purchase price is $18,000. The car has a seating capacity of sixty persons, and will run 120 miles with one charge.

New Haven's Plans for Electrification.

ON or about May 1st, the New York, New Haven and Hartford plans to put into service its new electrified section between Stamford, Connecticut, and New Haven. When this is accomplished, the extent of the electrified zone of this company will be practically doubled, and it will be possible for the New Haven to run through trains from New York to New Haven by electric power. The work of electrifying the new section is in an advanced stage, the iron posts and catenary cross-bridges now being practically installed, and the work of stringing the overhead wires about to be pushed forward.

The yards of the company, at Cedar Hill, New Haven, are being prepared for the stabling of electric engines, as well as for the steam equipment, which will be used to handle trains beyond this point. The completion of the electrification to New Haven will mark the consummation of the plans prepared by President Mellen in 1905. The work has taken longer in execution than it was originally predicted, but this is largely the result of careful experiments on the part of the company before proceeding with large expenditures. The success of this plan is demonstrated by the fact that the plans for the new section differ but slightly from those of the work first constructed. For the present, the power for the new extension will be supplied from the Central Station at Cos Cob. It is planned, however, to construct a new power plant in the near future on the meadow near the Cedar Hill yards, which are situated on the Quinnipiack River. This will allow coal to be brought from the tidewater in barges to the side of the power plant, from which it can be mechanically elevated to the storage bunkers, as is done at the existing power stations of this company.

Already, the New Haven management is planning a further extension to its suburban zone. Surveys have been made for electric service from New York through White Plains, Danbury, Waterbury and New Britain to Hartford. In addition, plans have been made for the four-tracking of the New Haven line between New Haven and Providence. This involves extensive changes of lines in New London, and the construction of a $4,000,000 bridge at that point. A proposition has been made to the Connecticut Legislature to sell to the State the existing draw-bridge over the Thames for highway purposes. In addition a considerable number of grade crossings must be eliminated. Two commissions have been appointed for the purpose of deciding upon plans to this end, and for making arrangements with the local communities for the apportionment of the cost thereof.

It is anticipated that the next step in the formation of plans will involve the electrification of the line between Providence and Boston. The time is not far distant when a passenger can ride from New York to Boston over the New Haven behind an electric locomotive.

Great Northern Not to Electrify.

THE filing of pre-emption claims for hydro-electric and irrigation purposes, of 25,000 inches per second of Columbia River water at Rock Island, where the Great Northern crosses the Columbia, started a series of newspaper statements, that the Great Northern had decided to electrify its line between Puget Sound and Spokane, and that this was the first step in the execution of the plan. President C. R. Gray, of the Great Northern, however, is reported to have said that "we have no present intention of electrifying the line between Seattle and Spokane as reported."

Chicago Terminal Electrification.

CHICAGO railway terminals have taken the first steps towards electrification by announcing the transfer of all interchange switching to the belt and new transfer yards. The bulk of freight switching will be done outside of the city. It is reported that those in charge of the new union station state that no steam engines will be operated in the depot.

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TERMINAL IMPROVEMENTS.

Kansas City's New Union Station.

THE new Union Station and terminal work under construction at Kansas City by the Kansas City Terminal Railway Company, is now rapidly approaching completion and, when finished, will represent one of the finest and most complete railway terminals in the West. The work includes, besides the building of the magnificent new station shown in the accompanying illustrations, the construction of such tracks and connections as will enable the passenger trains of all roads to reach the new station. It covers the building of a new line around the north end of the city to divert the through freight business from the main passenger lines, and it further covers a reduction of the heavy grade in the line of the old Kansas City Belt Railway, which becomes a passenger line, thus avoiding the use of pusher engines with their constant annoyance and delay. The present grade going east is 1.5 per cent for 6,000 feet. This grade is to be reduced to 0.9 per cent, making a summit cut of about 38 feet below the old grade.

The team yard, with paved driveways now in use, will be enlarged to an ultimate capacity of 300 cars and will be lighted. The new freight house will be 56 by 176 feet in size, of fireproof construction, and less than carload freight will be handled from and to all railroads entering the city. The yard is equipped with a substantial wagon scale, large enough to accommodate the largest auto-truck, and a platform for unloading automobiles. Several tracks will be set aside for unloading heavy material to be served by a Gantry crane spanning the tracks as well as the driveway.

From Southwest Boulevard to the station there will be eight main tracks; two nominally for industrial freight, four for passenger and two for empty equipment to and from the coach yards.

From the station to the Paseo there will be six main tracks; four for passenger business and two for industrial freight. From the Paseo to Eighteenth street there will be four main tracks; two for passenger business and two for industrial freight.

From Eighteenth street to Sheffield there will be five main tracks—two for passenger business, two for industrial freight and one for switching.

On the portion of the line where the grade is reduced there are frequent connections between the main tracks on the lower level and the industrial tracks on the present surface. All passenger track connections are double track.

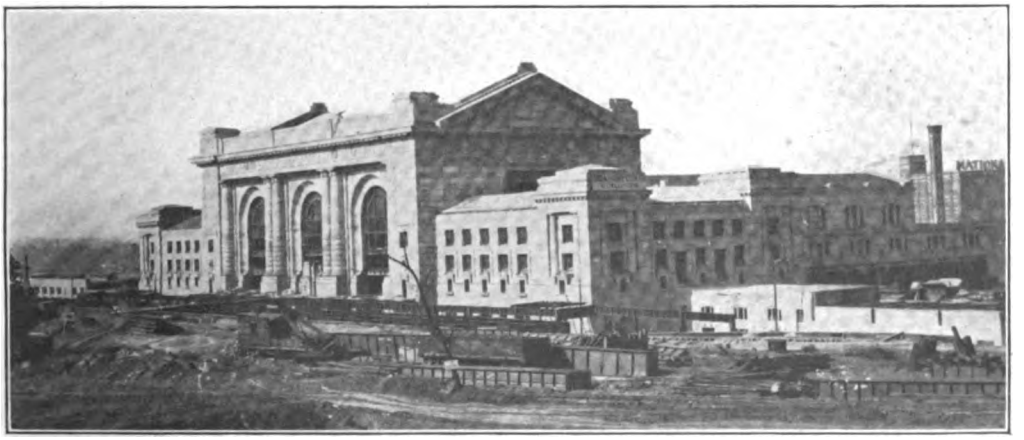
A number of interlocking connections will be constructed to take care of junction points and crossings, the tracks between being protected by automatic signals.

There will be constructed two large yards, one in Armourdale and one east of the Big Blue River for the rapid interchange of cars with all lines entering the city. The Armourdale Yard, now partially completed, will have an ultimate capacity of 2,000 cars. In addition it has team track facilities, tracks for repairing freight cars, a brick engine house, with a capacity of twelve engines and a 150-ton track scale. The eastern yard, to be known as the Blue River Yard, will have an ultimate capacity of 1,500 cars.

The station building is located between Main and Wyandotte streets. It is in the form of a "T" with a stem containing the waiting room extending out over the standing tracks. The main building is 150 feet long by 150 feet wide and is 126 feet high above the Plaza level. The waiting room wing is 410 feet long by 165 feet wide and 73 feet high above the Plaza level. On the west side of the main building are the express buildings, extending in a continuous stretch for over one thousand feet. These buildings do not extend above the Plaza level.

The main entrance to the station is on the south side, but there is a carriage entrance at the west end. On entering the Grand Lobby from the main entrance, the traveler passes the ticket office and in the center are two information booths so placed that the streams of travel pass by one or the other of them. In the west end of the station are the baggage check counter, the cab stand, parcel room, cigar shop, men's smoking and toilet room, barber shop and bath rooms.

In the east end are the restaurant, lunch room, women's waiting room, rest room, retiring room and toilet room. Along the north side of the room are the drug store, containing all kinds of



NEW UNION STATION BUILDING AT KANSAS CITY LOOKING NORTHWEST, WHICH WHEN FINISHED, WILL REPRESENT ONE OF THE FINEST RAILWAY TERMINALS IN THE WEST.

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ANOTHER VIEW OF THE KANSAS CITY UNION STATION BUILDING LOOKING SOUTHWEST.

traveler's necessities, news stand and book store and fruit store.

On either side of the ticket office are the telephone and telegraph booths.

Other facilities are furnished in the shape of a women's and children's room equipped with lounges and beds for use of families having long waits; bath rooms for women, complete hospital equipment for emergency cases, isolation room for contagious diseases, emigrants' quarters and a basket lunch room for those who bring their own lunch.

On either side of the main waiting room are passageways called midways in which are the stairways and elevators leading to the train platforms below. These midways are for the use of incoming passengers and to enable them to reach the grand lobby without passing through the waiting room.

The gates through which passengers go to reach their trains are located along the sides of the waiting room and the seats are arranged so that people can sit near the gate they will use. The waiting room has seats for 750 people. The train shed is 1,400 feet long and covers 16 tracks, which will accommodate 32 trains at one time.

All city baggage, express and mail is handled in the basement or track level floor and trains reach this level by inclines from Grand avenue and Broadway. All trucking to and from trains is done in the subway underneath the building and tracks and is reached by elevators located in the building and in each end of the platforms. By use of these subways all trucking is kept from interfering with passengers.

Additional land is owned by the Terminal Company allowing the waiting room and standing tracks to be increased 50 per cent whenever business warrants.

INTERIOR OF THE WAITING ROOM OF THE NEW KANSAS CITY UNION STATION.

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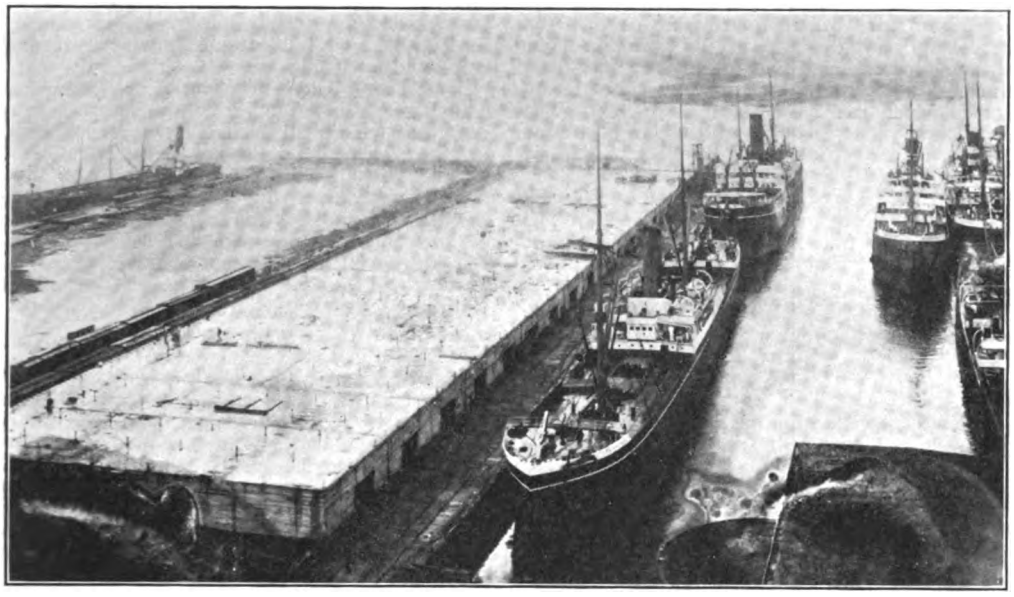
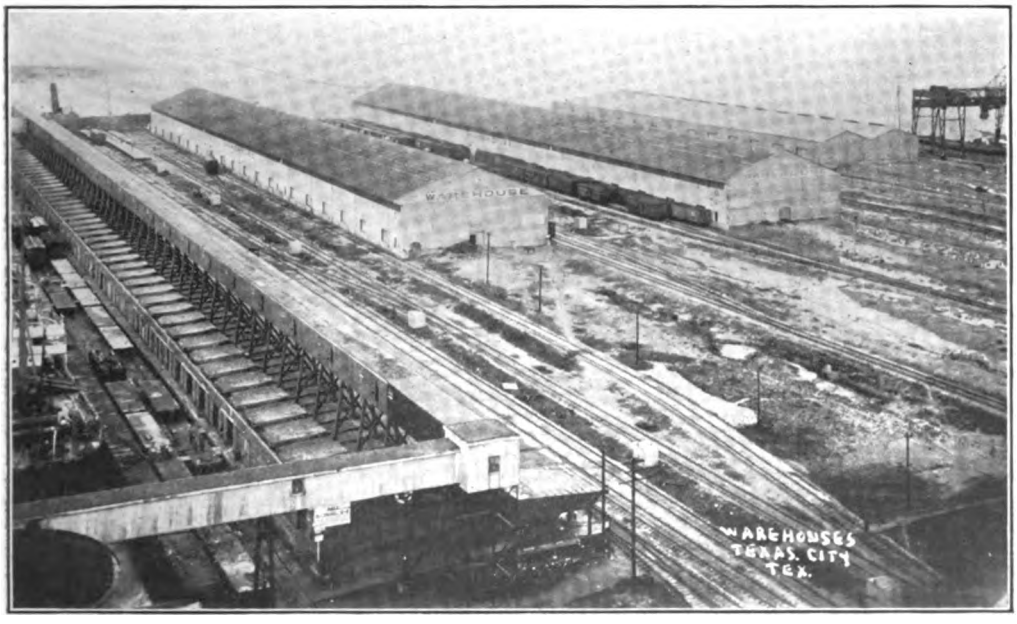
NEW TERMINAL FACILITIES FOR TEXAS CITY

MEETING the demand for additional facilities to take care of the increasing commerce of the Southwest, the Texas City Transportation Company, owners of the terminals at Texas City, the mainland port on Galveston Bay, have now in course of construction the second unit of their ocean terminal system. A pier 900 feet long and 500 feet wide has been built and upon the south side of it is now being erected the first double-deck reinforced concrete warehouse to be constructed at a Southern port.

The apron of the pier extends around three sides, giving 2,300 linear feet of water frontage, and is supported by creosoted yellow pine piles 45 feet in length. All timbers for the apron are of No. 1 yellow pine, treated with creosote, and the deck is built of 90 per cent heart long leaf yellow pine. The sheet piling for the bulkhead that re-



VIEW OF PIER "A" AT TEXAS CITY SHOWING TWO-STORY RE-ENFORCED CONCRETE WAREHOUSE UNDER CONSTRUCTION.



VIEW OF PIER "B", WHICH IS A CONTINUATION OF PIER "A", AND SHOWS FIRE-PROOF WAREHOUSES AND A MODERN TRAVELLING BRIDGE CRANE.

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tains the filling is eight inches thick and thirty feet in length, also thoroughly treated with creosote. Yellow pine piling thirty feet in length form the anchors of the bulkhead, the connections being heavy iron bars.

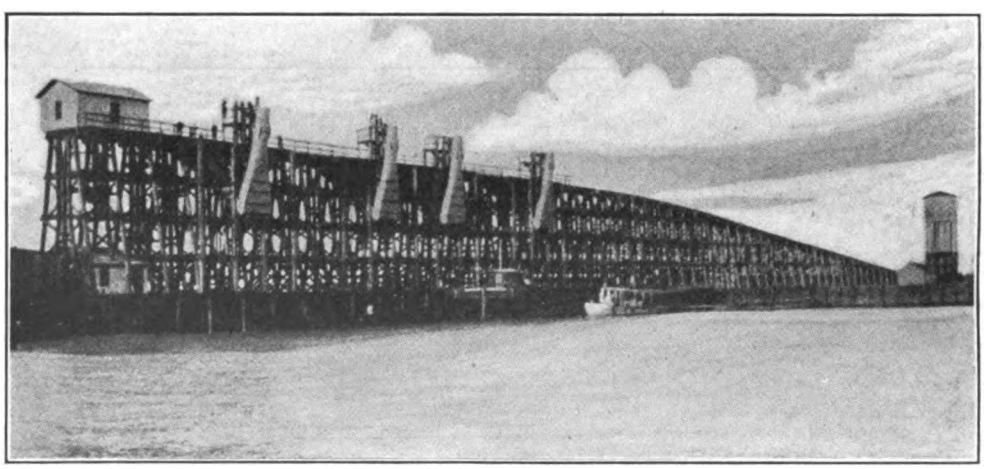
The warehouse covers an area of 155 x 880 feet on the ground floor and is fifteen feet narrower on the upper floor, the fifteen-foot space being occupied by an elevated track platform running the entire length of the building on the north side and at such an elevation as to place car floors on a level with the floor of the second deck. The supporting structure of the platform is reinforced concrete and forms a part of the building. The first floor or deck has a clearance of 14.4 feet from floor to beams except that portion under the elevated track which has a clearance of 7.6 feet. The second deck, yet to be built, will have a clearance of from 10 to 11 feet between floor and roof beams. The lower floor is divided into three sections or bays by 13-inch concrete firewalls, and similar walls will be built in the upper deck. The outside walls are nine inches thick. The floors of both decks are of concrete, as well as the foundations and columns. As a matter of fact there is not a stick of wood or any inflammable material in the building. The side doors are protected by automatic metal fire doors.

Incidentally, it may be mentioned that Texas City in 1912 enjoyed the greatest year of its brief history as a port. The total business amounted in volume to 404,201 tons and in value to $63,100,635, as against 8,712 tons, valued at $998,428 in 1904, the first year as a port. A total of 728,138 bales of cotton, valued at $43,293,982 were exported. Exports of wheat were 628,337 bushels, which together with other breadstuffs, including flour, reached in value $720,571. Total foreign business—exports and imports—were valued at $45,213,406, while the coastwise movement amounted to $17,887,230.

The Texas City Transportation Company is planning construction work during the present year that will in all probability exceed $1,000,000 in cost. Immediately following the news of the signing of the Rivers and Harbors Bill by the retiring President, giving Texas City's harbor $1,400,000 for constructing a dike to protect the channel and to widen and deepen the channel itself, an official of the company stated that fully a third would be added to the present terminal facilities.

DEVELOPMENT OF A NEW RAILROAD TERMINAL

ALMOST at the mouth of Galveston Harbor —in reality, lying to the north of it on the opposite side of the estuary, on which Galveston is situated—is Port Boliver, which is now being developed by the Santa Fe as an important terminal. At the time that the Santa Fe system purchased the Gulf and Interstate Railway, Port Boliver was a sleepy fishing village. Immediately thereafter, the railroad company began to fill in an extensive section of water front, and to erect thereon a large storage yard, a modern ore dock and extensive lumber sheds. The ore dock, which is shown in the accompanying illustration, is 325 feet in length, the track level being 358 feet above the water. The dock is equipped with four shutes, permitting of loading vessels in the shortest time.



NEW ORE DOCK OF THE SANTA FE AT PORT BOLIVER, TEXAS.

Foreign Terminals to be Studied.—That the new terminals in the United States may be satisfactorily equipped according to the printed "conclusion" of the last International Congress of Navigation, namely, "the mechanical transferring of miscellaneous cargoes from the vessel's hold or from the vessel's deck or from the pier's side, to all areas embraced within the terminal limits." Mr. H. McL. Harding, chairman of the commission, consulting engineer Department of Docks, New York City, has sailed for Europe to make an extensive study at the river ports and railway terminals where the latest types of mechanical appliances are employed in the transferring of miscellaneous cargoes and package freight. Mr. Harding will also visit the works where freight handling appliances are manufactured.

Site Procured for Chicago's New Union Station.—Plans have been completed and approved

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for the Union Passenger Station to be erected at Chicago at a cost of $25,000,000. Acting for all the roads interested, the Pennsylvania bought a tract adjoining the site. The building, which is to be monumental in character, will be built on the block bounded by Canal, Clinton, Adams and Jackson streets. The additional tract acquired by the Pennsylvania is on the east side of Canal street, between West Washington and Randolph streets.

New Chicago Freight Yards.—Chicago and Western Indiana has begun additional condemnation suits in the southwestern part of Chicago in connection with the projected freight interchange yards at the clearing formerly called the Stickney Tract, which will be the largest of its kind in the world. Belt Railway directors have approved final plans and work begins immediately with expectation of completion within year. Project includes elaborate arrangements for less than carload freight to effect further economy and efficiency in operation besides relieving downtown congestion. Fourteen industries are already located in that district, where residence and business subdivisions will be put on the market this spring.

It is claimed that the new yards will remove the greatest obstacle to electrification, reverse the freight flow, leaving downtown business only for downtown stations and tracks, decrease the railway smoke nuisance 50 per cent, save one day in passage of freight in and out, making exchange and classification between roads possible in one fourth the present time, create a new warehouse and manufacturing city at Clearing, lead to probable eventual union of all belt lines and all railways in one great clearing house, minimize heavy trucking through downtown streets, reduce to railways and shippers loss through congestion, delay, rehandling and switching.

New Railroad Yards at Paducah.—In connection with the new bridge over the Ohio River between Paducah, Ky., and Metropolis, Ill., which the Big Four, Burlington, Chicago and Eastern Illinois and Nashville, Chattanooga and St. Louis are to erect at a cost of $5,000,000, purchase has been made of 800 acres of land at Paducah, on which will be erected repair shops, union passenger station and a classification yard of 4,000 cars capacity. Improvements exclusive of the bridge are expected to cost between $3,000,000 and $5,000,000.

Lake Shore Shops at Ashtabula.—President Brown, of the New York Central, confirms the dispatch published in *The Wall Street Journal* to the effect that the Lake Shore and Michigan Southern Railway has purchased land at Ashtabula, O., on which to erect steel car repair shops. President Brown states that on account of the large number of steel freight cars now in use, and the movement of coal and ore traffic through Ashtabula for which these steel cars are largely used, it is deemed advisable to provide repair facilities at that point. The plant including the land will cost in the neighborhood of $1,000,000.

Repair Shops for Chicago and North-Western.—The Chicago and North Western Railroad has perfected plans for new repair shops at Clinton, Ia., which are to cost when fully equipped $500,000. The shops will be located where the company has ample ground for enlargement from time to time in the future.

Work on New Orleans Terminal Begun.—The Texas and Pacific Railway has started construction of its new terminals at New Orleans on property recently acquired. The property secured involves seventeen city blocks with a river frontage and when improvements are completed will give the company, it is said, the best terminal facilities in the city of New Orleans.

The terminal project will be constructed and conducted under a separate organization known as the Trans-Mississippi Terminal and Warehouse Company. This company will execute a mortgage covering its property to secure an authorized issue of $10,000,000 bonds.

No definite plans for permanent financing have yet been arranged, but it is expected that approximately $5,000,000 will be needed to cover the purchase and construction requirements for the immediate future. The Gould estate has temporarily loaned the company $2,700,000 to cover the purchase price of the real estate, and the company's bankers have advanced another $1,000,000 for immediate construction requirements.

These advances will later be financed either through sale of bonds if market conditions are favorable or through sale of short term notes secured by deposit of the bonds. The New Orleans city council has passed ordinances which will give the company perpetual rights within city limits, and the area covered by the new acquisition will, it is said, provide against the company's tidewater terminal requirements for the next hundred years.

Railroad Dock Requirements at New York.—Calvin Tomkins, dock commissioner of New York, has reported to the Board of Estimate another step in the negotiations for the development of a freight terminal in South Brooklyn. The Board had referred to him on February 20 a letter from Ralph Peters, chairman of the committee representing the Trunk Line railroads, saying that the scheme could not be carried through unless the present tracks of the Bush Terminal and the New York Dock Company were included.

Mr. Tomkins consulted with Irving T. Bush, president of the Bush Terminal, to ascertain the price at which he would sell the railroad property controlled by him. Mr. Bush answered that he was not willing to place any figure on it.

"This is partly due," he wrote, "to the fact that I still hope you will conclude that the proposition submitted by me last September will be acceptable to the city authorities, but also because the railroad yards are under our general mortgages, and therefore can only be acquired by condemnation."

Mr. Bush went on to outline a plan whereby a valuation might be reached. The chief feature in his plan was the provision of a committee of three appraisers to determine the value.

Commenting on the project, Mr. Tomkins said in part:

"J. J. Hill has rightly stated that the railroad system of the country has broken down at its city terminals. I carry the thought farther by suggesting that the only remedy will be for the cities to provide the railroads with public terminals, free from taxation, at rentals not to exceed interest and amortization, and with the proviso that the charges of the terminal companies for service shall be limited to such rental, plus reasonable operating expenses. In other words, if the city is

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to relinquish all exploitation profits, the terminal companies will be expected to do so too and provide good service at minimum cost."

Improvements on the Baltimore and Ohio.—The details of an extensive program of improvements which the Baltimore and Ohio System is about to commence on the Somerset and Cambria division, between Johnstown and Rockwood, Pa., has been made public. The work will cost approximately $1,500,000 and will be started, it was explained, just as soon as the sanction of the city authorities of Johnstown can be obtained, authorizing the railroad company to proceed.

The improvements will include modern passenger and freight facilities and large yards in Johnstown, more than doubling the present capacity of the Baltimore and Ohio's facilities there; construction of passenger and freight facilities which will enlarge the capacity of the terminal at Somerset, building long passing sidings and heavy steel bridges on the Somerset and Cambria division which will provide a double-track on a considerable stretch of the line, new passenger station at Rockwood and the construction of a new low-grade line between that point and Garrett, Pa.

The improvements will be provided to meet the increased demands of business in Johnstown and vicinity and to enable the road to handle the vast coal traffic from the Quemahoning fields with every possible facility.

Larger Facilities at Cincinnati.—Extensive improvements are to be made in the McLean Avenue yards of the Cincinnati, New Orleans and Texas Pacific Railway (Queen and Crescent Route), in Cincinnati according to announcement by General Manager Horace Baker. Eight new tracks are to be constructed and present tracks will be rearranged. This improvement, giving a considerable addition to the McLean Avenue yards and also a more efficient arrangement of the various sidings, including the repair tracks, will be of great advantage in handling the heavy business that moves over the Queen and Crescent Route and the Southern Railway.

Interstate Commerce Commission

Change in Personnel.

THE change of National Administration brought with it a number of interesting developments affecting the Interstate Commerce Commission, the most important of which was the reappointment by President Wilson of Commissioner E. E. Clark and his immediate election to the chairmanship of the Commission to fill the vacancy made in that position by the appointment of Commissioner Franklin K. Lane to the Secretaryship of the Interior Department. It will be remembered that President Taft, shortly before the inauguration of President Wilson, made an effort to reappoint Commissioner Clark, but the Senate failed to act on the nomination. President Wilson is to be highly complimented upon his action in this matter and through it the Commission has been able to retain the services for six more years of one of its most valuable members.

E. E. CLARK.

Who was recently re-appointed to the Interstate Commerce Commission by President Wilson, and subsequently elected as Chairman of that body for the ensuing year.

JOHN H. MARBLE,

Late Secretary of the Interstate Commerce Commission, who has been appointed a Commissioner by President Wilson.

Prior to his reappointment Chairman Clark had been a member of the Commission for six years, having been originally appointed by President Roosevelt in 1906. He began his career as railway brakeman and was later made a passenger conductor. This position he held until 1889 when his unusual qualifications led to his selection as grand senior conductor of the Order of Railway Conductors. The following year he was elected grand chief conductor. His leadership proved an inspiration to the entire order and under his wise administration its membership increased from

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12,000 to 38,000. While in this position he was appointed by the President of the United States as a member of the Anthracite Coal Strike Commission of 1902. His entire career has evidenced an integrity, fair mindedness and close application to duty which has won him many friends.

J. H. Marble, who only a year ago was elected secretary of the Interstate Commerce Commission, was also appointed a commissioner by President Wilson to fill the vacancy made by the withdrawal of Commissioner Lane. Mr. Marble was with the Interstate Commerce Commission as an attorney for several years before he was appointed to the secretaryship. He came to that body from California in 1906 as a confidential clerk. He was born at Ashland, Nebraska, in 1869, and was educated at the University of Nebraska. For a number of years he was in the newspaper business in South Dakota, Wyoming and California, and in 1902 was admitted to the Bar of California.

The appointment of Mr. Marble as Commissioner left vacant the position of secretary which has been filled by the appointment of George B. McGinty. Mr. McGinty entered the service of the Interstate Commerce Commission in November, 1908, in the division of Statistics and Accounts. He subsequently served as confidential clerk to Commissioner Clements, and when Secretary Moseley died, the duties of the secretary's office fell to a great extent to the office of the chairman, and in this way Mr. McGinty became familiar with the duties of that position. While Mr. McGinty was appointed by the Commission as special examiner in October, 1911, he was retained in the chairman's office through the chairmanship of Commissioner Clements and likewise served in a similar capacity to Chairman Prouty. When Mr. Marble was appointed secretary in February, 1912, Mr. McGinty was made assistant secretary, which position he held until his present appointment.

Mr. McGinty was born in 1878 in Monroe county, Georgia, and is a graduate of Emery College of Oxford, Georgia. He has studied and practiced law and has seen railway service as soliciting agent for the Atlantic Coast Line, in the local freight office of the Georgia Railroad and as private secretary to the vice-president and general manager of the Southern Railway. When the meat inspection bill was passed in 1906, Mr. McGinty entered the service of the Bureau of Animal Industry of the Department of Agriculture and was largely engaged in handling correspondence with the carriers respecting conformance by meat shippers and carriers with the regulations of the Department.

The recent changes in the personnel of the Commission are apt to have an important effect on rate regulation in the future, and it is believed, as now constituted, the Commission represents a more conservative body than during the Taft Administration. It is also to be hoped notwithstanding the fact that Mr. Lane has become a member of the Wilson Cabinet, that the new Administration, on account of recent developments, will look with more favor upon the proposition of higher rates than the Taft forces did. It is practically certain that some action must be soon taken by the railroads to strengthen their financial position, if they are to procure the funds necessary for the expansion which is constantly being demanded by larger commercial demands.

GEORGE B. MCGINTY.
The Commissioner's New Secretary.

Physical Valuation.

CONGRESS has set the Commission a gigantic task in passing the physical valuation bill, but the Commission is not, as has been suggested, staggered by the duties that have been placed upon it. As Chairman Clark states, "the work will be approached and proceeded with in a business-like, impartial and thorough way. Necessarily, it will take some time. Just how long, no one knows." The following statement recently made by the new Chairman regarding the general subject of the valuation of railroads, is of particular interest at the present time:

"The law requires that the rates, fares, and charges of the carriers shall be reasonable. Their revenues may not, therefore, be reduced below the point of reasonableness. The courts have held that a common carrier or public service corporation is entitled to earn a fair return upon the value of the property that is devoted to the public service.

"Manifestly the fair return upon the value of the property cannot be determined until the value of the property is known. The courts have indicated certain factors that are to be taken into consideration in determining the value of the property, but have been careful to say that there are other factors besides those named which might enter into the determination.

"In one important case involving advanced rates upon a commodity that moves in large volume, the carriers presented to the Commission voluminous testimony as to the value of their properties. This testimony was uncontradicted, as no one aside from the carriers themselves had any reliable information or data upon that subject. The advanced rates were, in part, allowed, and in part condemned. The rates prescribed by the Commission were established by the carriers, but the validity of the order was challenged in the courts, on the ground that the rates were confiscatory.

"Exhaustive testimony was presented before the court in which the carriers again proved the value

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of their properties, and, strangely, those values for each of two carriers were something like $100,000,000 more than those which had been proven before the Commission a comparatively short time before. And it was not because of additional investment or improvement in the interim. The Commission was finally upheld by the Supreme Court of the United States.

"But suppose that the carriers had proven the value of their properties to have been much greater than they did. Who could have disproved the claim? Who knows the value of the property of a single carrier? One expert would say that the value is to be measured by its original cost. Another would say that its outstanding or authorized stocks, bonds, notes, and floating debt represents its value. Another would take the position that its true value is what it would cost to reproduce it.

"This question and the many difficulties that are necessarily connected with fair, dependable, and final answers to it, have been studied by those who think deeply on such matters, and the Congress has provided a means for securing reliable, authentic, and exhaustive information upon which to base a determination of the original cost, the present and the reproductive value of these properties that exist under public franchises and perform public functions. When these have been ascertained, the Commission will find the values of the several carriers and the values so fixed will be prima facie evidence in the courts. The owners of the properties are guaranteed a hearing upon any objections which they may desire to present against the valuations first proposed by the Commission, and which objections will be fully heard and carefully considered before final determination is reached.

"The work is one of great magnitude, but the Commission is not, as has been suggested, staggered or dazed by the duties that have been placed upon it. The work will be approached and proceeded with in a businesslike, impartial and thorough way.

"It is desirable that it should be done with as much dispatch as is consistent with accuracy and thoroughness. Necessarily, it will take some time. Just how long, no one knows. The amount of available funds, the number of available, competent men and the time necessary to be spent in securing reliable information as to financial matters in the past, which must be traced back through changes in ownership, reorganization, consolidations, sales and leases, all bear directly upon the question of how soon the work can be completed. There need be, I think, no apprehension that Congress will fail to provide all necessary funds. That the Congress does not underestimate the magnitude of the work or the time necessary for it is evidenced by the provision for reports to the Congress at the opening of each regular session."

Private Car Investigation.

THE Commission has instituted an investigation into the operation of private car companies that is regarded as one of the most important ever undertaken by the federal body. The United States Steel Corporation, the Standard Oil Company, the big packers and brewers and fruit growers' associations, all operating private cars are concerned. The primary purpose of the inquiry is to determine the relations that exist between the railroads and the private car companies.

It was stated by officials that the Commission has been deluged with complaints by independent packers, brewers, stockmen, coal mine operators, oil men, dairy products men and others that the private car is being used as a means of paying rebates and that independents who do not own them are placed at disadvantage thereby.

Every railroad in the United States also has been directed to furnish the Commission at the earliest practicable date all information in their possession with regard to private cars, their contracts with private car companies and with individuals owning private cars.

An important feature of the investigation is that it will put up to the Commission the question as to whether a carrier should itself own equipment capable of satisfactorily carrying the commodities it undertakes to transport.

For some time the Commission has been quietly conducting an inquiry into the management of private cars and it has unearthed a condition that the officials believe warrant a thorough investigation. The Commission already has developed the fact that there are no less than 1,200 private car companies in the United States, which by lease or other arrangement obtain revenue from the railroads. The Commission wants to know whether there is an interrelationship that enables the railroads to own the private cars and then to pay for their use. There is a suggestion that the railroads control the private cars through holding companies.

There was sent out to officers of the 1,200 private car companies a series of interrogatories designed to determine their relations with the railroads. The questions were preceded by a statement setting forth that it was the intention of the Commission to hold hearings at various places throughout the country and that the answers were to be used as the basis of the hearings.

The statement further sets forth that if the private car companies or owners of private cars failed to furnish the information sought the Commission would resort to its power of subpoena to secure it.

Commissioner McChord has been placed in charge of the investigation. He has designated George P. Boyle as chief examiner to collect the information and direct the work of special examiners.

In beginning this inquiry the Commission has for the first time called on the public for information. It has prepared a circular addressed to "Users of private freight cars," and which, after outlining the nature of the investigation, says:

"It is the desire of the Commission that all shippers or associations interested in this investigation communicate to it not later than March 31 such information as may be in their possession and which they consider pertinent to the inquiry."

Report on Water Lines.

TWENTY-FOUR questions have been sent to the railroads by the Commission requesting information relative to the ownership or control of water lines or vessels. This was under the authority of the Panama Canal act, which prohibits the use of the canal to vessels owned by railroads. The terms of the new law will affect water traffic in all sections of the country, as well as coastwise through the canal. The

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railroads are directed to file their answers by April 15.

Following the usual preliminary questions, the roads are asked to file tabulated data relative to the ownership, control or lease of

Any carrier engaged in transportation by water, or

Any carrier having any proprietary interest in vessels or other property used in transportation by water, or

Any carrier engaged in ferry, lighterage, or towing service, in which the reporting carrier on June 30, 1912, had—

An interest in the nature of control, either directly by stock ownership, or directly through an intermediary company, or

An interest through lease or operation of property under permit or other agreement, or

An interest in common by reason of directors or stockholders in common, or of like relations to a holding company, or in any other manner.

Relative to chartered boats the roads are asked to give the following facts:

Name of vessel.
Class of vessel.
Gross and net tonnage.
Kind of service in which engaged.
Period of charter.
Form of charter.
From whom chartered.

All the data called for is to indicate the condition as of June 30, 1912. Besides the control and ownership of vessels, the roads are asked to give similar detailed information relative to their ownership, control of dock facilities and water front property. They are asked to give the tonnage handled at the ports which they serve, dividing the tonnage into products of agriculture, of animals, of mines, of forests, manufactures, merchandise and miscellaneous. The roads are further requested to give information relative to the issuance of bills of lading for import and export traffic.

Question 21 is as follows:

"If the reporting carrier is affiliated with any steamship company, or any carrier by water, coastwise or foreign, through agreements or through any understanding or working arrangements, as regards the exchange of traffic or division of rates, and if the terms of the agreements, understandings, or arrangements have not been furnished in answer to any of the foregoing questions, give the names of such carriers and state in connection with each the essential terms of each agreement, understanding, or arrangement."

The questions go into the details of stock ownership, the class of securties held and how acquired in water lines.

The Cost of Freight Service.

A LIST of questions have been sent to the railroads by the Commission designed to gather data relative to the cost of passenger and freight service. The roads are requested to file their answers by April 30. This is one of the steps understood to have been advised by Commissioner Meyer by which it is hoped to arrive at a scientific basis for rate making. Commissioner Meyer had the statisticians of the Commission make some investigations beginning last spring into this question and railroad officials were asked to make recommendations relative to it.

In the letter of transmittal the roads are informed that.

"These inquiries are made in order to learn the extent to which and the manner in which railway companies in the United States now make a separation of operating expenses between freight service and passenger service and to obtain the results of such separation, wherever made, for a particular year, preferably for the year ended June 30, 1912. Certain statistics of operation for the period covered by the expenses assignment herein reported are also requested for use in interpreting the expense data submitted.

"Certain carriers regularly make a complete separation or apportionment of operating expense between freight service and passenger service. Other carriers select certain primary expense accounts and separate only those between the two services, making no separation of the general expenses. Each carrier within the scope of the order shown hereunder is required to make returns for as many of the primary accounts as existing records will permit. If these separations cannot be furnished for the year ended June 30, 1912, the calendar year or other twelvemonth period may be substituted, proper modifications of printed dates being made."

Chief Inspector Urges New Safety Rules.

CHIEF Inspector of Safety Appliances Belnap, in reporting on two Ohio wrecks, has called the Commission's attention to the inadequacy of certain standard code rules of the railroads. The first report was concerned with the rear-end collision on the Pennsylvania lines west of Pittsburg, near Dresden, O., on December 3 last, when nine passengers and two employes were killed. The standard code dule governing in this instance is as follows:

"Unless some form of block signal is used, trains in the same direction must keep at least five minutes apart, except when closing up at stations."

Mr. Belnap reported: "This rule provides proper spacing of trains only in the vicinity of open stations. Should these open stations be far apart a fast train could easily overtake a slow train, while should a train come to an unexpected stop, as was the case in this instance, it might be impossible for the flagman to go back the distance necessary to protect his train. This rule is believed to be entirely inadequate to insure proper protection."

The second report dealt with the accident on the Pittsburg, Cincinnati, Chicago and St. Louis Railroad, near Bowerstown, O., on December 13 last. Mr. Belnap criticised the following flagging rule of the company:

"When a train stops or is delayed under circumstances in which it may be overtaken by another train the flagman must go back immediately with stop signals a sufficient distance to insure full protection. When recalled he may return to his train, first placing two torpedoes on the rail when the conditions require it."

Commenting on this Mr. Belnap said: "The only absolute requirement of this rule is that a flagman must go back immediately with stop signals. How far he shall go back, and whether or not he shall use torpedoes, are matters that are left entirely to his judgment of what the particular situation requires. When considered in connection with safety in the movement of trains, the flagging rule is of paramount importance, and

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its requirements should be as absolute as it is possible to make them. It should be incapable of more than one construction, entirely free from uncertainty or indefiniteness, leaving no room for error of judgment by a flagman when such error may prove disastrous."

Greater Safety Order.

THE Commission has issued orders to its safety appliance and other inspectors to tighten up in the inspection of railroad equipment. Commissioner McChord, who has charge of safety appliances and similar matters, has decided that the so-called human equation excuse has been worked overtime in view of reports which have been made to him as the result of an investigation which he started. It is reported that the Commission has decided that it will not compromise any more cases and that no excuses will be accepted.

The Commission has been considerably worked up for more than a year by the many wrecks and loss of life and Commissioner McChord states it intends now to go forward and prevent wrecks by showing railroads how to do it rather than by investigating them and holding coroner's inquest. He may rest assured he will receive the hearty support of the carriers.

New Baggage Regulations.

A DECISION has been issued by the Commission approving, with minor exceptions, the new regulations of the railroads regarding baggage. The regulations apply on all the railroads of the country, and when first proposed were suspended and investigated by the Commission. Chairman Clark, summarizing the decision of the Commission, said:

"Carriers may reasonably provide for an extra charge for the transportation of pieces of personal or sample baggage, excepting whips in cases, having dimension or dimensions exceeding 45 inches such charge per inch is excess of 45 will not be accepted for checking as baggage.

"Respondents must provide for checking as baggage, whips in flexible cases not exceeding 90 inches in length, nor 12 inches in diameter at the base, nor 100 pounds in weight.

"Carriers may reasonably provide that a piece of baggage exceeding 72 inches in any dimension will not be accepted for checking.

"Upon notice of not less than one year carriers may provide that trunks or other rigid containers with more than two bulging sides, or with two bulging sides that are not opposite to each other, will not be accepted for checking as baggage.

"Carriers' definition of sample baggage should permit including therein salesmen's catalogues.

"Where the charges for excess weight and excess dimensions do not exceed the minimum charge, the single minimum charge shall apply."

The restrictions proposed by the railroads were bitterly fought before the Commission by many commercial associations and actors, who recognized they would be limited in the privileges they previously enjoyed.

The new rules as modified by the decision of the Commission are to take effect April 29.

Revised Rules on Foreign Freight Tariffs.

THE Commission has issued revised regulations covering the issuance of freight tariffs by railroads. Possibly the most important change was made in the rules regarding import and export traffic, which now reads as follows:

"The inland carriers of traffic exported to or imported from a foreign country not adjacent must publish their rates and fares to the ports and from the ports, and such rates or fares must be the same for all, regardless of what ocean carrier may be designated by the shipper or passenger. In order to avoid controversies and questions, tariffs hereafter issued containing rates applicable to export or import traffic shall specify by inclusion or exclusion the countries to or from which shipments to which such rates are applicable shall move, whether such countries are, or are not adjacent to the United States. In the interest of clearness the tariffs should also specify whether or not shipments to or from Cuba, the Philippine Islands, Porto Rico or the Canal Zone are included. For convenience, and without regard to the political status and relation of the Philippines, Porto Rico and the Canal Zone to the United States, they, together with Cuba, are for these purposes to be classed with foreign countries."

Uniform System of Weighing.

THE Commission has completed its investigation of the weighing facilities of the railroads of the United States. The final hearing was held at Chicago recently after more than a year of investigation, during which time the Commission has been told many times by shippers that the weighing apparatus is inaccurate and irregular. It is expected that the Commission will make important recommendations to the railroads for improvement of conditions along these lines, and that it will seek to formulate a rule which will be fair to both the shippers and the carriers.

Cars for Shipping Flour.

IN denying reparation in the case of the Southwestern Millers' League against the Union Pacific, the Commission has entered a decision dealing with the preparation of cars for shipping flours which holds that lining and padding cars for flour shipments partakes of the nature of private packing rather than of public equipment. Provisions for reimbursement of shippers for such expenditures, the Commission said, would be susceptible of use as a subterfuge for payment of rebates.

The roads were instructed to furnish cars in good repair, clean, and in proper condition for transportation.

Long and Short Haul Clause Case.

ARGUMENTS were presented on March 17, before the Commission in the Long and Short Haul case involving the class and commodity rates of the railroads in Southeastern territory. This case included all the rates from New York City, Ohio River crossings and New Orleans, La., to South Atlantic and Gulf ports, points on navigable rivers, etc. Walton Moore appeared for the majority of the Southern roads, and in connection with his arguments presented a brief of several volumes.

The railroads contended that they should be permitted to continue to charge higher rates to the intermediate points than to the Coast points

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owing to the nature of the competition. It was said that the present rates are determined by water competition, competition between markets of production, competition between markets of distribution, competition between markets of consumption and competition between commodities transported.

Speaking of the rates from points in the Mississippi Valley to points in the Southeastern territory, Mr. Moore said that roads which file reports would stand to lose $12,786,841.17 per annum if the long and short haul clause of the law is strictly applied, whereas the gross freight revenue of the same roads is but $191,141,585. The ratio of loss would be 6.69 per cent. Estimating from this same percentage, he said the loss accruing to the non-reporting roads would be $3,138,022.17, making a loss to all the carriers in this section of $15,924,863.34.

The attorney said that the net surplus of all the roads in the Southeast during the fiscal year of 1910-11 was $36,903,521. After deducting the loss incident to a strict application of the fourth section law in this section of the country the surplus would amount to only $20,978,608.

It was argued that not to grant the petition of the railroads and permit them to continue the present basis of rates would work a hardship. The water competition on the Atlantic Coast was declared to dominate the situation.

"From as far west as Kansas City, Mo.," said the attorney, "the trunk line and water rates via New York are less to the south Atlantic ports on some of the classes than the direct all-rail rates. The Memphis route is the short line, a distance of 1,212 miles. The Cairo route is but 17 miles greater, and the New York route is 347 miles greater. The rates via New York, combination of rail and water, are 5½ cents on first class freight, 6 cents on second class, and ½ cent on third class, higher than the all-rail rates from Kansas City via Memphis or Cairo, and 14 cents on fourth class, 13 cents on fifth class and 10½ cents on sixth class, lower than the all-rail rates through Cairo or Memphis. This shows that the water lines control the rates."

Decisions and Rulings for March.

THE mill of the Commission turned out its usual grist of rulings, decisions and suspensions during the month of March.

The most important suspension was that of the supplement of grain tariffs filed by carriers operating in the Central Freight Association territory. These supplements advance rates for the transportation of grain and grain products from points north of the Ohio River and east of the Mississippi River to interstate points, generally speaking, from one-half to one cent per hundred pounds and in some instances to three cents per hundred pounds. And in some instances to three cents per hundred pounds. The increases, which were to become effective on March 15th, have been suspended until July 8th, and in the meantime the Commission intends to conduct an exhaustive investigation as to the reasonableness of the advances.

Other suspensions include advances in lumber rates between points in Louisiana and Mississippi and Memphis, Tenn., until September 12th; increased rates on grain and grain products proposed by the Rock Island from Chicago, Missouri and Mississippi rate territory to destinations in Oklahoma and the Southwest until July 5th; advance in rates on bricks from Chanute and other points in Kansas to Iowa and Illinois, until July 1st; advances in rates on hay in carloads from St. Paul and Minneapolis and other points to Ohio River crossings, until July 1st; advances in rates on asphalt and asphaltum from points in Kansas to St. Louis, until September 1st; advances in rates on pig iron in carloads from points in upper Michigan and Minnesota to Kansas City and other points until August 26th and advances in the rates on lumber and articles taking lumber rates, from Texas points to stations in Oklahoma, Kansas and Missouri, until June 23d. The Commission has also suspended until July 12th, certain schedules which propose to cancel the absorption of lighterage and floating charges of three cents per hundred pounds on carload and five cents per hundred pounds on less than carload traffic handled by the Chicago River and Indiana Railroad Lighterage and Float Service to and from points on the Chicago river front. This virtually amounted to an increase of rates to that extent. Freight tariffs of the Chicago Great Western Railroad, which cancel milling and transit privileges of shippers at Minneapolis, have also been suspended until June 20th, while the new baggage regulations contained in tariffs filed by the Midland Valley and the St. Louis Southwestern railroads have been further suspended until August 25th. These regulations would place restrictions on baggage exceeding certain dimensions both east and west of the Mississippi River. Freight tariffs of the Baltimore and Ohio and other railroads providing for the discontinuance of free store-door delivery and pick-up service in Washington, have been suspended until June 28th. This service is at present extended to shippers and consignees on less than carload shipments, originated at or destined to points north of Wilmington, Del., and including New York and Boston.

Rate Increases Improved.

THE Commission approved a number of rate advances during the month which included the following:

A rate of $2.10 per ton on coal from the Pocahontas fields in Virginia and West Virginia to Winston-Salem. The Commission held, however, that the rate of $2.00 per ton from the same points of origin to Martinsville, Virginia, is excessive to the extent it exceeds $1.80. An advance in the rate on pig iron in carloads from Wharton, New Jersey, to Harrisburg, Pa., to $1.15 was allowed, as were also advance rates on linseed oil from St. Paul and Minneapolis to the South and West; advances in the freight classification on bicycles in Official Classification territory and on pepper in the Western Classification territory and advances in the rates on wheat and corn from Joplin, Mo., to New Orleans and Mobile.

Recent Decisions.

AMONG the more important recent decisions of the Commission are included the following: An order to withdraw the proposed advances in rates on fresh meats and packing house products from Oklahoma City, Fort Worth and Wichita to all points on the Santa Fe System in New Mexico, excepting coast line points west to Albuquerque. Present corn rates from Kansas City, Mo., to Shreveport, La., are held to be reasonable and the complaint against them which was for the purpose of establishing

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a two-cent differential between the proportionate rates on corn and corn products, is dismissed. The fact that mills located in Texas, Arkansas and Missouri have a lower rate than the Louisiana mills is due, according to the Commission, to a more advantageous location in being nearer to the corn-producing markets. The proposed advance in the minimum weight on ear corn, snapped corn and corn in the shuck from the Southwest in carloads of 40,000 pounds is held unjustifiable. A flat minimum weight of 40,000 pounds, however, is found to be reasonable when standard 36-foot cars or larger, are furnished.

Beet sugar rates are also found to discriminate against beet sugar factories in Ohio and Michigan. Rates of the Louisville and Nashville from Cincinnati and points Northwest to Knoxville and Chattanooga have been found unreasonable when compared with rates from New York, Philadelphia, Baltimore and New Orleans. A discrimination is created against Chicago and Ohio and Michigan points that is declared to be unjust and unlawful. The rates of the carriers south of the Ohio are ordered corrected.

The present adjustment of rates on leather from points in western North Carolina on the lines of the Southern Railroad, are held to be reasonable. The re-establishment of through rates on coal from mines in Colorado and New Mexico to points in Oklahoma and Texas on the Wichita Falls and Northwestern Railroad and allied lines, has been ordered. The Missouri Pacific and other railroads have been ordered to withdraw the freight tariffs cancelling present joint rates and through routes on cottonseed from points in Oklahoma to Little Rock, Arkansas; the Southern Pacific Company has been ordered to withdraw the proposed advances in rail and water rates on cypress lumber from points on the New Orleans, Texas and Mexico Railroad between Baton Rouge and New Orleans to interior points in the North Atlantic States; rates on granite and stone blocks from Louisville, Ky., to Lebanon, Ky., as a part of the through rates from Barrick, Vt., and Bedford, Ind., are held to be unreasonable and reductions ordered; increases in rates on coal from the Illinois mines in the Springfield district to points in Iowa have been prohibited. The Commission holds that the proposed increases were for the manifest purpose of obtaining for the Chicago, Burlington and Quincy Railroad, a practical monopoly of the coal business for the group of mines on its line. It is ordered that the present rates shall remain in force for two years; rates on beet sugar in carloads from Cincinnati to Knoxville and Chattanooga, Tenn., as compared with the rates from competing markets to same destination are held to be unduly favorable to cane sugar between New York, Philadelphia, Baltimore and New Orleans.

In dismissing the complaint of the Morris Iron Company of Frederick, Md., against the Baltimore and Ohio Railroad Company and others, the Commission holds that it has no jurisdiction to order a physical connection between the Baltimore and Ohio and the Frederick railroads, at Frederick.

ORGANIZATION NOTES.

Mechanical Engineers to Discuss Steel Car Construction.—A meeting of the American Society of Mechanical Engineers will be held in New York on the evening of April 8th, under the auspices of the Railway Committee for the purpose of discussing steel car construction and the latest developments of the art. A number of engineers have consented to contribute ten-minute discussions on the phases of the subject in which they are particularly interested.

Some of the phases which will be taken up are: Problems of Steel Car Design, Suspension of Steel Cars, Trucks of Steel Passenger Cars, Provisions for Lighting in Steel Cars, Provisions for Electrical Equipment in Steel Motor Cars, Special Ends for Steel Passenger Cars, Draft Gears for Steel Passenger Cars and Cast Steel Double Body Bolts and End Frames for Steel Cars.

The following program indicates the comprehensive manner in which the topic is to be handled:

Introduction to general discussion of Steel Passenger Cars, H. H. Vaughan, assistant to the vice-president, Canadian Pacific Railway; Interior steel finish, Felex Koch, assistant mechanical engineer, Pressed Steel Car Company; Roof Structures, C. A. Seley, mechanical engineer, Rock Island Lines; Corrosion and protection of steel passenger cars, C. D. Young, engineer of tests, Pennsylvania Railroad; Problem of steel car design, W. F. Kiesel, Jr., assistant mechanical engineer, Pennsylvania Railroad; Suspension of Steel Cars, E. W. Summers, president Summers Steel Car Company; Truck for Steel passenger cars, J. A. Pilcher, mechanical engineer, Norfolk & Western; Provision for electric lighting in steel cars, H. A. Currie, assistant electrical engineer, New York Central & Hudson River; Provision for electrical equipment on steel motor cars, F. W. Butt, assistant engineer, New York Central & Hudson River; Special ends for steel passenger cars, H. M. Estabrook, president, Barney & Smith Car Company; Draft gears for steel passenger cars, S. P. Bush, Buckeye Steel Castings Company; Cast steel double body bolster and end frames for steel cars, C. T. Westlake, chief mechanical engineer, Commonwealth Steel Company.

In order to allow each of the speakers ten minutes and still have plenty of time for discussion the meeting will open sharp at eight o'clock. This is earlier than meetings of this kind ordinarily open in New York City and those who intend to come are asked to come early in order that they may not disturb the meeting after it is opened.

Electrical Night of New York Railroad Club.—The New York Railroad Club held its ninth annual electrical night on the evening of March 21st. There were no set papers but addresses were made by men actively interested in the extension of electricity to railway operations. These addresses which are not at hand at the present time, will be discussed in the May issue of the "Railway World."

Meeting of St. Louis Railway Club.—The March meeting of the St. Louis Railway Club, was addressed by L. T. Shedd, of Chicago, general safety supervisor of the Rock Island Lines, on the general movement begun by railroads looking to a greater safety for their employees. Mr. Shedd laid particular stress on the fact that a large proportion of accidents among railway employees is due to carelessness or lack of re-

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gard for rules. His lecture was interestingly illustrated by means of motion pictures. Mr. W. N. Northcott, secretary of the Railroad Y. M. C. A. at Chicago also spoke of safety work being done in that city.

Meeting of Railway Engineers at Chicago.—The annual convention of the American Railway Engineering Association, was held in Chicago at Congress Hotel from March 18th to 21st, inclusive. Means for making railway travel more safe were extensively discussed, including plans for the manufacturing of better rails. Reports were received from various committees and consideration given to the subject of rules and organizations, signals and interlocking, iron and steel structures, economies of railway location, wooden bridges and trestles, wood preservation and ties and masonry. Papers were also read on the subjects of the conservation of natural resources, ballast, water service, yards and terminals, electricity and records and accounts. These papers and their discussion will be reviewed at greater length in a future issue of the "Railway World."

Peace Society on Canal Tolls.—The trustees of the Carnegie Endowment for International Peace have published a statement in which they urge the repeal of that part of the Panama Canal Law which grants free passage through the canal to American vessels engaged in the coast-wise trade.

The argument is made that Great Britain has raised a fair issue regarding the interpretation of the Hay-Pauncefote treaty in her protest against the free tolls clause of the treaty and that the United States government cannot refuse to arbitrate the question unless the cause of the protest is removed. Therefore, say the trustees, the clause in the law to which objection has been taken should be repealed in order that the good faith of the United States with regard to the Panama Canal shall be made clear to the world.

The statement is signed by Joseph H. Choate, Andrew D. White, Charles Y. Eliot, John L. Cadwalader, Elihu Root, Luke E. Wright, Charlemagne Tower, R. S. Woodward, Austen G. Fox, J. G. Schmidlapp, Robert S. Brookings, Oscar S. Straus, Samuel Mather, James L. Slayden, Charles L. Taylor, Henry S. Pritchet, William M. Howard, Robert A. Franks, Nicholas Murray Butler, Arthur William Foster, and James Brown Scott.

Freight Car Balances.—The bulletin of the American Railway Association of freight car balance and performance for November, 1912, states that miles per car per day was 26.0, the same as in October, the highest on record. Ten miles per car per day was 424 compared with 433 in the preceding month, and an increase of 12.77 per cent over the corresponding month of 1911. The proportion of cars on line was 48 per cent, a decrease of 10 per cent compared to October.

There was an increase to 75.9 per cent in the percentage of loaded car mileage compared with 73.9 per cent in October 70.8 per cent in November two years ago. The average earnings per car per day of all cars on line were $2.92 as against $3.03 in October, and an increase of 10.61 per cent over the earnings for November, 1911.

Meeting of St. Louis Terminal Board.—At a recent meeting of the St. Louis Terminal Board, plans were approved for the construction of the new passenger station of the electric lines, which, it is hoped, will be opened some time during the coming summer.

Proprietary interests as follows were represented at the board meeting: Missouri Pacific, E. J. Pearson; Wabash, Henry Miller; Louisville and Nashville, G. E. Evans; Baltimore and Ohio Southwestern, W. C. Loree; Vandalia, A. M. Schoyer; Illinois Central, W. L. Park; Chicago and Alton, B. A. Worthington; Rock Island, A. C. Sweet; Southern, T. C. Powell; Burlington, E. P. Bracken; Cotton Belt, F. H. Britton.

Joint Conference on Marketing and Distribution of Food Products.—It is understood that a call for a conference of leading railway, banking and agricultural interests in Chicago on April 8th, has been issued for the purpose of devising means of eliminating the waste in the production of the Nation's food supply, due to absence of a sound financial and business system. Plans for simplifying methods for marketing and distribution will also be discussed. It is understood that a large number of prominent railway officials will attend the conference.

Meeting of Western Railway Club.—At the March meeting of the Western Railway Club, George Bradshaw delivered an address on "Railroad Accidents and their Prevention," and like Mr. Shedd, who recently addressed the St. Louis Railway Club, he held that unwise practices or carelessness on the part of employees, were responsible for a large number of railroad accidents.

"More care," said Mr. Bradshaw, "should be taken in determining the mental and moral qualifications of men employed in responsible positions. There should be an employment bureau on every large railroad having authority to employ men and to make a thorough investigation of the history of each applicant.

"We should have the finest body of men in the world in charge of our trains. Every boy wants to go railroading and we should select the best of them for the service."

The Merchants' Club, of Boston, Discusses New England Railway Situation.—At a recent meeting of the Merchants' Club, of Boston, Theodore N. Vail, president of the American Telephone and Telegraph Company, stated that:

"The placing of the New England railroad system upon the highest lines of efficiency, requires the expenditure of large sums of money. With uniform rates, the revenues of the whole distributed over all would make all self-sustaining and remunerative, and warrant and provide for such expenditures. Why, then, destroy by useless duplication the ability of the better parts of our railroad to carry the weaker parts? The extension of any trunk line through New England would mean such duplication with all its detrimental effects on existing lines, its burden for the public, and without any possible advantage to anyone."

Nominations of the Chicago Traffic Club.—According to an announcement made by the

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Nominating Committee of the Traffic Club, of Chicago, the regular ticket which was voted on at the annual election of the organization, held on March 25th, is as follows:

President, Guy S. M'Cabe; first vice-president, W. M. Hopkins; second vice-president, Frank W. Smith; third vice-president, L. Richards; secretary, W. H. Wharton; treasurer, C. B. Hopper; directors, F. B. Montgomery, V. D. Fort, C. E. Finch, and H. K. M'Evoy.

Dinner in Honor of President Rea.—On the evening of February 25th, Daniel Willard, president of the Baltimore and Ohio Railroad, gave a delightful dinner at Baltimore in honor of Samuel Rea, who became president of the Pennsylvania Railroad on January 1st. The list of guests included men prominent in railroad, financial and industrial fields, and included a number of railway presidents.

Meeting of Classification Committees.—After a lapse of eighteen months, the Western Classification Committee, held a regular meeting in St. Louis on April 1st for the purpose of considering with the shippers certain changes in classification.

The Southern Classification Committee will meet in Cincinnati, April 7th, and the Official Classification Committee will meet about one week later in Chicago.

Tri-State Passenger Association Holds Annual Convention.—The passenger agents of the railroads of the central States held their Fourth Annual Convention in Springfield, Ill., on March 5th. The States represented were Illinois, Indiana and Missouri. The following were elected officers of the association for the ensuing year: C. J. Guyette, of St. Louis, district passenger agent of the Missouri, Kansas and Texas Railway, president; C. C. Anderson, of St. Louis, district passenger agent of the Rock Island Lines, vice-president; Joseph T. Thompson, of Chicago, district passenger agent of the Northern Pacific Lines, secretary.

Annual Banquet of New England Traffic Club.—The annual banquet of the New England Traffic Club was held in Boston on the evening of March 7th. The principal speakers were: Senator John W. Weeks, of Massachusetts, and Honorable F. C. Stephens, member of Congress from St. Paul, Minn., whose subject was: "The Panama Canal and Its Effect on Commerce."

Luncheon of Chicago Traffic Club.—About 150 members attended the monthly luncheon of the Chicago Traffic Club, Tuesday, March 18th, and heard a very interesting talk by Judge Charles S. Cutting, of the Probate Court, Chicago. Judge Cutting in his address strongly urged the elimination of judicial elections from partisan politics, also an indefinite term of office for judges, thereby making it practicable for the best lawyers to serve the people on the bench.

LEGISLATION.

National.—The passage of the Physical Valuation Bill over-shadowed in importance, all other National Legislation of the past month, so far as the railways are concerned. This bill, which by the President's signature, has become a law, authorizes the Interstate Commerce Commission to investigate, ascertain and report the value of all the property owned or used by every common carrier, subject to the provisions of the act. The Commission is authorized to employ such experts and other assistants as may be necessary. The Commission shall make an inventory which shall list the property of every common carrier and show the value thereof, and shall classify the physical property as near as practicable, in conformity with the classification of expenditures for road and equipment, as prescribed by the Interstate Commerce Commission.

The Senate Committee, on Interstate Commerce, has adopted a report on the subject of further legislation for the regulation of trusts and corporations, the effect of which is to recommend to Congress prompt and far-reaching laws, to strengthen the anti-trust laws already in force. The idea of a commission such as the Interstate Commerce Commission, to aid in the regulation of the great interstate industrial corporations, is favored. These recommendations are discussed at greater length in another section of this issue.

The Workmen's Compensation Bill, which originated in the Senate, has been passed by the House of Representatives, by a vote of 218 to 71. In the Senate, however, it is reported that the committee having this matter in charge, has been unable to agree on the terms of the bill and many Senators, particularly those from the South, object strongly to seeing the State laws superseded. There appears to be little hope that the bill will pass this Congress. The bill to create a Department of Labor with a cabinet officer at its head, passed the Senate just before the close of the Taft administration and was signed by the President. A more extended reference to this is made in another section.

The Annual Rivers and Harbors Appropriation Bill, as finally passed by the Senate, carried an appropriation of over $48,000,000 or an increase of $7,000,000 over the amount authorized by the House.

A significant feature in the development of State Legislation is the number of Full Crew Bills and Labor Compensation Bills which are being introduced and passed by the various State legislators. This shows an unusually aggressive attitude on the part of organized labor and so far as the Full Crew Bills are concerned, is, in most instances, being vigorously opposed by the carriers.

Arkansas.—Acting Governor Oldham has signed the legislative act repealing the Arkansas anti-trust law.

The repeal of the law permits any foreign corporation to engage in business in the State so long as the foreign concern does not seek to regulate prices within the State.

Connecticut.—A bill amending the charters of common carriers in the State and requiring them to furnish free transportation to members of the General Assembly during attendance on legislative sessions, has passed both branches of the legislature. This action has been taken in spite of the warning on Governor Baldwin's part, that such legislation, if passed, would be vetoed.

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The members who voted for the grab tucked a rider amending the charter of every common carrier, thus making the New Haven road pay for the short-sightedness of Connecticut's solons of 20 years ago.

Illinois.—The Brotherhood of Locomotive Engineers will soon submit to the General Assembly a bill requiring all trains when occupying main tracks to be protected by a flagman, regardless of any block system or signal or yard limits board.

Indiana.—Governor Ralston has signed a bill giving the Indiana Railroad Commission power to order the separation of grade crossings anywhere in the State. An effort was made to limit the power so that the Commission could only order one separation to 200 miles of railroad and not more than one in any county in any one year, but failed.

Maine.—Provision for the appointment by the governor of two citizens of Maine as members of a New England Railroad conference to act in connection with the appointees of other New England governors to consider and report on the best methods of developing and operating the New England Railroad system, is made in an act introduced in the Maine Senate.

New York.—The Full Crew Bill which was vetoed by both Governor Hughes and Governor Dix, has passed the Assembly with but two negative votes. Attempts on the part of the minority to amend the bill so as to empower the Public Service Commission to exempt any railroad from compliance with the bill's provisions and giving it authority to conduct hearings and recommend statutory changes failed.

The bill provides that roads more than fifty miles long shall have three brakemen on freight trains of over twenty-five cars, and an extra brakeman on passenger trains of over five cars.

Officials of railroads operating in New York are voicing vigorously objections against this bill. In a letter to Governor Sulzer, President Samuel Rea of the Pennsylvania Railroad says:

"This measure lays down an arbitrary rule that trains shall be manned by a specified number of men, regardless of the necessities in each case. There must be the same number of men on a passenger train, for example, whether it is a continuous run of 100 miles or a run involving stops at every way station. A fast freight, involving but little work for the crew, must have just as many men as a local freight, with constant switching and continuous work for the men, the whole regulated solely by the number of cars in the train. Such a rule adds an extra and unnecessary brakeman, arbitrarily, to a large number of trains. No additional security is obtained. If there is no additional safety and no increased efficiency in a superfluous crew, and if the public interest is adequately safeguarded through the Public Service Commission, why place upon the railroads—and ultimately upon the public—the burden of a heavy and fruitless expenditure?"

President Mellen, of the New York, New Haven and Hartford, has also sent a letter of protest to Governor Sulzer in which he says:

"This bill lays down a rule providing for a certain number of men on each train, regardless of the work of the train in question. Express freight trains, involving but little work, where the crew is rarely called upon to leave the caboose; express passenger trains, where there is practically no work whatever devolving upon the crew, are required to be manned with substantially the same number of men as local trains, both passenger and freight, where there is a very large amount of work to be done, and the size of the crew is regulated only by the number of cars in the train.

"Such a bill adds seriously to the operating expenses of railroads doing business within the State of New York, and contributes in no way, that I can see, to the safety of passengers, or performs any useful service in connection with the train. The burdens upon all railroad corporations at the present time, through the passage of legislation not dissimilar to that referred to in this letter, are serious, and with the railroads' income limited (for it is well nigh impossible to secure any advance in the prices we receive for the transportation furnished), the enactment of such legislation into law by your approval will add to the burdens and lessen the efficiency of the transportation companies operating in your State."

Other strong letters of protest have been sent to the Governor, by President Brown, of the New York Central Lines, and President Underwood, of the Erie.

Massachusetts.—The Committee on Railroads has reported to the Senate a bill providing a fine of $1,000 or imprisonment of one year, or both, for the officer of any railroad corporation who wilfully violates any law of the commonwealth relative to railroad consolidation.

The bill as reported provides that "any officer or agent of a railroad corporation who wilfully violates any of the provisions of section forty-seven or of section fifty-seven of Part II of chapter 463 of the acts of the year 1906, as affected by chapter 620 of the acts of 1908, shall be punished by a fine of not more than one thousand dollars or imprisonment of not more than one year or by both such fine and imprisonment."

The changes from the original bill are the insertion of the word "wilfully" and the provision in regard to chapter 620.

Representative Barnes has redrafted his grade crossing bill which was defeated in the Senate by a tie vote. The new section provides that the road shall eliminate one crossing each year for every hundred miles of roadbed.

Missouri.—The so-called full crew bill pending in the Missouri Legislature, which provides for additional brakemen on freight and passenger trains, is absorbing the interest of many railroad officials. A similar bill has been introduced in the States of Kansas, Texas, and Oklahoma. In Kansas it was killed on adverse report of the Senate; it failed to pass the House in the Texas Legislature, which, under the constitution of that State, kills it, and it has not passed either house of the Oklahoma Legislature.

A law requiring all railroads doing business in Missouri to incorporate under the laws of that State, has been passed by the House of Representatives. The purpose of the proposed law, is to make it possible for persons to sue the

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railroads in the State Court. Governor Major has signed the Public Utilities Bill, which creates a State board of five members to regulate the rates and service of all public utilities corporations in Missouri. The law is modeled after the New York law.

Provision is made for a court appeal from decisions of the Commission, but a clause in the bill provides for the speedy advancement of such cases on court dockets.

New Jersey.—With the passage signature of Governor Fielder to the Grade Crossing Bill, the railroads operating New Jersey are confronted with a condition against which they fought with great energy. This bill, which is now a law, and which is discussed more fully in another section, enables the utilities commission to provide for the abolition of all grade crossings and to fix the entire expense of the work on the railroads except in the event of a trolley crossing and the relaying of municipal water and sewer pipes. A number of towns, notably the Oranges, have refused to negotiate with the railroads except on that basis.

Oklahoma.—Governor Cruce, of Oklahoma, has vetoed the 2¼ cent passenger rate bill, which had passed the legislature. The present passenger rate in Oklahoma is 3 cents, and the bill was vigorously opposed by the railroads in that State. Railroads consider the veto will greatly stimulate the growth of Oklahoma.

Later an effort was made to pass this bill over the Governor's veto, and failed. By a vote of 31 to 10, however, the Senate passed over the Governor's veto, the bill requiring railroads operating within the State to maintain hospital facilities within the State.

Rhode Island.—An act, submitted to the electors by a special election, the Chamberlain proposition, whereby the State is asked to guarantee $6,000,000 Southern New England Railway bonds, has been introduced in the House.

After providing for submission to the electors for a vote on the matter the act reads:

"Shall the General Assembly be authorized and directed to provide for a guarantee on the part of the State of the principal and interest of the $6,000,000 bonds of a corporation to be formed by the consolidation of the Southern New England Railway Co., and the Southern New England Railroad, said guarantee to be second to that of the Central Vermont Railway Company, of Vermont. The proceeds from the sale of said bonds to be applied to the completion of the railroad of said corporation from Providence."

Texas.—By a vote of 22 to 6, the Senate has passed over Governor Colquitt's veto the Missouri, Kansas and Texas Railroad Consolidation Bill, which would allow that road to merge under one management the Missouri, Kansas and Texas Railroad of Texas, the Wichita Falls and Northwestern, the Wichita Falls and Southern, the Texas Central and the Beaumont and Great Northern Railroads.

Though the three last-named lines are subsidiaries of the Missouri, Kansas and Texas, they have maintained separate offices under Texas charters.

The House had already passed the bill over the Governor's veto.

The Farmers' Union of Texas, through its officials and representatives, has sent an address in opposition to the full crew bill to all the members of the thirty-third Texas Legislature. In part the address says: "The Farmers of Texas respectfully ask you not to place any additional burden on the producers of this State. Our burdens are heavy enough already.

"For the above reason we are opposed to the Full Crew Bill now pending that will compel the railroads to employ additional men on their trains, thereby increasing the cost of operation—which we in the end pay—about $1,000,000 a year."

Vermont.—Two bills which would give the Boston & Maine Railroad permission to construct two connecting links to complete its system down the Connecticut River Valley to Massachusetts, parallel with the Central Vermont, a Grand Trunk subsidiary, have been passed upon favorably in the Legislature. Counsel for the road said, however, that the connecting links would not be built so long as the present agreement between the Grand Trunk and the Boston & Maine for the joint use of the existing tracks remained in effect. The agreement might be abrogated by either company, according to the counsel, when the arrangement should be found unsatisfactory.

West Virginia.—An act of the Legislature designed to preserve competition among railroads, has been signed by Governor Glascott.

The act prohibits any director, officer, agent, representative or attorney of any railroad company doing business in this State from acting or serving as president, vice-president, director or general executive officer of any kind of any railroad company owning or controlling or interested in any parallel or competing line. It also prohibits any railroad from consolidating its stock or franchise with that of any other parallel or competing railroad company.

Railroad companies are given until July 1, 1913, to divest themselves of any ownership of capital stock or equitable interest in any shares of the capital stock of another railroad or a competing or parallel line of railroad.

Fine and imprisonment are provided for violations, and Criminal and Circuit Courts of all counties are given jurisdiction.

LABOR.

The Month's Developments.—Railway labor developments for the past month were of a decidedly menacing character, and the opinion has developed among officials that they constitute one of the gravest immediate problems of railway management. In various sections of the country demands for increased pay and improved conditions are being made or are in the course of preparation and a climax is rapidly approaching which will leave railway managers no other alternative in many cases, than to flatly refuse such demands. This was recently pointed out in a significant manner by Mr. Elisha Lee who is chairman of the Conference Committee of Managers, representing the fifty-four railroads in the Eastern territory, which, a few weeks ago, submitted the Fireman's Wage Controversy to arbitration under the Erdman Act. Mr. Lee's statement made before the Arbitra-

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tion Committee, and which is referred to at greater length in another section, clearly indicates that the railroads have reached a point where they now feel it is their duty to the public and their shareholders to resist demands which they believe extravagant; and, it is further intimated that such demands have now unquestionably reached this point.

Under the circumstances, the necessity for some adequate governmental regulation, under which such disputes shall be arbitrated, is becoming daily more apparent. The Erdman Act is entirely inadequate to meet the situation and furthermore, can only be applied with the consent of all parties concerned. The Railway Business Association, ever on the alert to promote and conserve in a legitimate way, the proper operation and development of the Nation's railways, has recently issued a bulletin which portrays in a striking manner, the National menace of railway strikes as evidenced by recent developments in the attitude of railway labor.

The Railway Business Association declares the situation so grave that Congress should at once take some adequate action which would reassure business. It is pointed out that one of the acute present causes of business anxiety is the fear, that through the failure of the Federal Erdman Act, arbitration of railway labor disputes may break down and perhaps plunge the whole country into the chaos and destruction of a strike. It is suggested that Congress, at the extra session, should make arbitration procedure so acceptable to employees and railway managers that an adjustment of disputes will be assured without inflicting interruption of train service upon millions of neutrals. It asserts that the Erdman Act should be amended forthwith or legislation substituted for it providing for a form of voluntary arbitration so little open to valid objection as to deprive the disputants of all reasonable excuse for declining arbitration under the law.

It is suggested that railway managers, railway employees and the public should co-operate to obtain legislation which will place them squarely on the side of industrial peace and public convenience and accomplish some progress in the direction of equity for all concerned in the settlement of wage disputes.

In the meantime the demands of railway labor go merrily on. The railways, giving employment to hundreds of thousands of hands, bound by Federal, State and local laws and regulations, paying heavy taxes and distributing millions in compensation, are being placed more and more at the mercy of irresponsible labor organizations, who, at the present time, are not subject to either Federal or State interference unless property has been actually destroyed or blood shed.

At Chicago, a recent vote of switchmen, who are employed by the nineteen important railroads operating in and out of that great metropolis, overwhelmingly indicated that the men were ready to resort to the objectionable methods of a railway strike unless their demands for higher wages were agreed to. Later developments, however, found them willing to arbitrate under the Erdman Act and at the present writing Commissioner Hanger, of the Bureau of Labor, is in Chicago attempting to adjust the differences.

In the East, railway trainmen appear to be generally preparing to make a demand on their employers for higher wages and changes in working conditions, and the leaders of the Brotherhood are urging members to induce all eligible employees to unite with the organization. Intimations are being made frankly by Eastern railroads, however, that until the issue with the firemen is determined, they will consider nothing in behalf of any other oganized body of employees.

In New England, between 250 and 300 men, members of the Electrical Workers' Association, and employed in the electrification and construction work of the New Haven road between Sanford and New Haven, have struck for higher wages. Officials of the road state that the demands will not be granted and that their positions will be filled as rapidly as possible.

As the result of a series of conferences between the representatives of the Illinois Central Railroad and officials of the Railway Telegraphers, more than one thousand telegraphers in the employ of that road have obtained a new contract providing for an increase in pay. There have been small strikes in various sections of the country and unimportant wage adjustments.

Predictions are being made, that owing to the many improvements which will be required during the coming season and on account of the unusually heavy demand for railway labor in Canada, there will be a shortage of labor for maintenance of way work during the current year as serious as that which existed during the season of 1912. Preparations are being made on many lines to begin work as early in the spring as possible. On a number of railroads material is now being assembled and distributed and bunk cars prepared for the use of employees.

NEW ROADS.

Canada.—Advices from Ottawa say that parliamentary sanction has been obtained for the incorporation of the Calgary, Edmonton & Fort McMurray Railroad Company, with a capital of $10,000,000. The company proposes to construct a line from Calgary to Edmonton and then to Fort McMurray, Chipewyn, and on to the Great Slave Lake, also two branch lines.

Oklahoma.—The Oklahoma Northern Railroad Company has been chartered with $50,000 capital, to build a line from Vinita, Ok., to Coffeyville, Kan., a distance of forty-two miles, at an estimated cost of $35,000 per mile. The promoters of the new line are: A. King, H. L. Steen and G. D. Meiklejohn, all of Omaha, Neb.; W. F. Snodgrass and J. W. Tolliver, both of Centralia, Ok. Under the terms of its charter the road is allowed to use either steam or electricity for its motive power.

Reports from Guthrie state that the Mountain Valley and Plains Railroad, chartered with $500,000 capital in February, 1909, and promoted at that time, is now to be built. The securities have been sold and construction will begin in the near future. The road was chartered to build eastward from Cimarron, N. M., through Higgins, Clarendon and Dalhart, Tex., to Guthrie, passing through the Oklahoma towns of Taloga, Arnett, Watonga and Kingfisher.

Texas.—Arrangements are being made for the construction of a railroad from Teague to Paris, Texas, via Bristol, Alsdorf and Telico. The pro-

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posed line will connect with the Trinity & Brazos Valley at Teague and with the Houston & Texas Central at Paris. It will be about eighty miles long.

Reports from Fort Worth state that a railroad is to be constructed from Knox City, on the Orient Railroad, to Crystal Falls and ultimately to this city. The new line is to traverse the northern part of Stephens County, in which, it is said, there is an undeveloped coal field.

West Virginia.—A charter has been granted by the Secretary of State to the Williamsport, Nessle & Martinsburg Railway Company, with principal offices in Martinsburg, and capitalized at $250,000. The company plans to construct a railroad between Williamsport, Md., and Martinsburg.

ELECTIONS AND APPOINTMENTS.

A Correction.

In the March issue of the "Railway World," it was stated that Mr. L. E. Johnson, President of the Norfolk and Western Railway, had resigned. This was a mis-statement of fact, and the result of a false report, utterly without foundation. It is a matter of sincere regret to the management of the "Railway World" that it should have occurred.

Executive.

M. C. Beyers, assistant to president, Great Northern Railway. Headquarters, St. Paul, Minn.

Wilbur C. Fisk, president, Hudson & Manhattan Railroad. Headquarters, New York.

John H. Hunter, vice-president, Brinson Railway. Headquarters, Savannah, Ga.

James Imbrie, chairman of the board, Brinson Railway. Headquarters, Savannah, Ga.

Edward T. Jeffrey, director, Galveston, Houston & Henderson Railroad.

J. A. Jordan, president, Green Bay & Western Railroad, the Kewanee, Green Bay & Western Railroad and the Iola & Northern Railroad.

M. K. King, vice-president, Canton Railroad. Headquarters, Baltimore, Md.

Julius Kruttschnitt, president, director and ex-officio member, executive committee, Pacific Mail Steamship Company.

A. D. Lightner, vice-president, New Orleans, Texas & Mexico. Headquarters, New Orleans.

H. W. MacKenzie, comptroller, Seaboard Air Line. Headquarters, Portsmouth, Va.

W. A. McDowell, vice-president, Lexington & Eastern Railway.

W. M. McPherson, director, Grand Trunk Railroad.

Edgar Palmer, vice-president, Green Bay & Western Railroad, the Kewanee, Green Bay & Western Railroad and the Iola & Northern Railroad.

Charles E. Schaff, director, Galveston, Houston and Henderson Railroad.

Finley J. Shepard, director, Missouri Pacific Railway and St. Louis Iron Mountain & Southern Railway.

A. H. Smith, senior vice-president, New York Central Lines.

Samuel C. Stickney, assistant to president, Erie Railroad. Headquarters, 50 Church Street, New York.

J. W. Sullivan, vice-president and purchasing agent, Orange & Northeastern Railroad. Houston, Texas.

J. W. Taylor, assistant to president, Chicago, Milwaukee & St. Paul Railway.

C. W. Woolford, director, Cincinnati, Hamilton & Dayton Railway.

B. A. Worthington, president, Peoria Railway Terminal Company. Headquarters, Peoria, Ill.

Legal.

W. T. Irwin, general counsel, Peoria Railway Terminal Company. Headquarters, Peoria, Ill.

Financial.

George H. Crosby, secretary and treasurer, Peoria Railway Company. Headquarters, Chicago, Ill.

Hugh Neill, secretary, Pacific Mail Steamship Company

Edgar H. Rowley, treasurer for receivers, Kansas City, Mexico & Orient Railway of Texas.

S. M. Swenson, secretary and treasurer, Houston & Brazos Valley Railroad.

Accounting.

J. H. Beggs, maintenance of equipment accountant, C. & E. I. Headquarters, Danville, Ill.

W. H. Burns, auditor, Peoria Railway Terminal Company. Headquarters, Chicago, Ill.

B. A. Dousman, general auditor, Milwaukee & St. Paul Railway.

J. C. Nelms, Jr., auditor, Carolina Railroad. Headquarters, Norfolk.

Engineering and Mechanical.

W. E. Anderson, master mechanic, Colorado & Southern and Atchison, Topeka & Santa Fe. Headquarters, Denver, Colo.

J. A. Barker, trainmaster, Chesapeake & Ohio Railway of Indiana. Headquarters, Boston, Ind.

H. E. Bateman, assistant trainmaster, Pennsylvania Railroad. Headquarters, Altoona, Pa.

H. G. Batten, supervisor of bridges and buildings, Grand Trunk. Headquarters, Detroit, Mich.

F. K. Bennett, assistant engineer, Missouri Pacific. Headquarters, Kansas City, Mo.

N. C. Bettenberg, master mechanic, Great Northern. Headquarters, Crookston, Minn.

James Boyd, assistant engineer, Hamilton Division, Grand Trunk. Headquarters, Hamilton.

A. E. Brown, trainmaster, Southern Pacific. Headquarters, Roseville, Cal.

R. Budd, chief engineer, Great Northern. Headquarters, St. Paul.

T. W. Callahan, master mechanic, Kalispel Division, Great Northern Railway.

Steel Campbell, trainmaster, Orange & Northwestern Railroad. Headquarters, Anchorage, La.

R. Cantrell, roadmaster, Carthage District, St. Louis, Iron Mountain & Southern. Headquarters, Aurora, Mo.

H. R. Carpenter, engineer maintenance of way, Missouri Pacific. Headquarters, St. Louis, Mo.

A. J. Carter, trainmaster, Chicago, Burlington & Quincy R. R. Headquarters, Aurora, Ill.

Joseph Chidley, assistant superintendent of motive power, Lake Shore & Michigan Southern.

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The Chicago & Indiana Southern and the Indiana Harbor Belt. Headquarters, Cleveland, Ohio.

F. W. Cowley, trainmaster, Canada Division. Michigan Central. Headquarters, St. Thomas, Ont.

J. M. Davis, master mechanic, Colorado & Southern. Headquarters, Trinidad.

S. K. Dickerson, superintendent of motive power, Cleveland, Cincinnati, Chicago & St. Louis Railway. Headquarters, Indianapolis, Ind.

C. R. Diemar, assistant engineer, Baltimore & Ohio Southwestern. Headquarters, Cincinnati, Ohio.

C. A. Dunham, assistant signal engineer, Lake District, Great Northern. Headquarters, St. Paul.

H. H. Eggleston, supervisor of bridges and buildings, Chicago Great Western. Headquarters, Des Moines, Iowa.

C. I. Evans, trainmaster, Missouri, Kansas & Texas. Headquarters, Parsons, Kan.

W. H. Evans, district master mechanic, Second District, Canadian Pacific, British Columbia Division. Headquarters, Vancouver, B. C.

H. W. Fenno, resident engineer, Lake Shore & Michigan Southern. Headquarters, Chicago, Ill.

J. E. Fitzsimons, master mechanic, Central Vermont Railway. Headquarters, St. Albans, Vt.

J. S. Fleck, assistant trainmaster, Pennsylvania Railroad. Headquarters, Pitcairn.

P. D. Galarneau, superintendent shops Armour Car Lines also New Orleans and Mobile repair forces. Headquarters, Meridian, Miss.

J. E. Gardner, electrical engineer, Chicago, Burlington & Quincy. Headquarters, Chicago.

R. M. Garnett, roadmaster, St. Louis, Brownsville & Mexico. Headquarters, Kingsville, Texas.

William Garstang, general master car builder, Cleveland, Cincinnati, Chicago & St. Louis, the Peoria & Eastern and the Cincinnati Northern. Headquarters, Indianapolis, Ind.

H. H. Gibson, chief engineer, New Orleans, Southern & Grand Isle Railway. Headquarters, Algiers, La.

J. W. Griffey, trainmaster, Third District, West Virginia Division, Western Maryland.

H. F. Hamilton, resident engineer, Great Northern. Headquarters, St. Paul.

Patrick K. Hanley, train master, Clinton, Havana and Decatur Districts, Illinois Central Railroad. Headquarters, Clinton, Ill.

C. Hawkins, supervisor of track, Grand Trunk. Headquarters, Pontiac.

Hans Helland, construction engineer, San Antonio & Aransas Pass. Headquarters, San Antonio, Texas.

V. K. Hendricks, assistant chief engineer, St. Louis & San Francisco R. R. Headquarters, Springfield, Mo.

J. C. Hill, roadmaster, Louisiana Lines, Southern Pacific. Headquarters, Morgan City, La.

J. H. Hill, trainmaster, Chicago & Northwestern Railway. Headquarters, Baraboo, Wis.

A. H. Hogeland, consulting engineer, Great Northern. Headquarters, St. Paul, Minn.

H. B. Holmes, resident engineer, Kansas City, Mexico & Orient. Headquarters, Kansas City, Mo.

F. G. Jonah, chief engineer, St. Louis and San Francisco. Headquarters, St. Louis, Mo.

K. E. Kellenberger, signal supervisor, Western Iowa Division, Chicago & North Western.

B. R. Kulp, acting division engineer, Chicago & North Western. Headquarters, Antigo, Wis.

William Lamb, trainmaster, Waterloo terminals, Albert Lea Division, Illinois Central. Headquarters, Waterloo, Ia.

J. Lockert, supervisor of track, Grand Trunk. Headquarters, Grand Rapids.

S. S. Long, division engineer, Chicago & Northwestern Railway. Headquarters, Chicago, Ills.

George McCormick, assistant general manager (mechanical) Galveston, Harrisburg & San Antonio, the Houston & Texas Central, The Houston East & West Texas, the Houston & Shreveport, and the Texas & New Orleans. Headquarters, Houston, Texas.

M. B. McPartland, general foreman, Locomotive Department, Rock Island Lines. Headquarters, Cedar Rapids, Iowa.

J. J. McQueen, trainmaster, Big Four. Headquarters, Hattiesburg, Miss.

C. H. Marshall, superintendent of construction, Chicago & Council Bluffs Division, Milwaukee Line. Headquarters, Marion.

E. E. Mesber, master mechanic, M. K. & T. Headquarters, Smithville, Texas.

Walter Mobley, trainmaster, Central of Georgia Railway. Headquarters, Macon, Ga.

S. B. Moore, trainmaster, Missouri, Kansas & Texas of Texas. Headquarters, Waco, Texas.

W. P. Moran, trainmaster, Chicago, Milwaukee & St. Paul Railway. Headquarters, Savannah, Ill.

R. F. Morkill, signalling engineer, Grand Trunk. Headquarters, Montreal, Que.

R. C. Morse, assistant passenger trainmaster, Pennsylvania Railroad. Headquarters, Pittsburgh.

J. Mullen, supervisor of track, Grand Trunk. Headquarters, Durand.

J. V. Murphy, roadmaster, Houston & Texas Central. Headquarters, Ennis, Texas.

S. B. Murphy, assistant trainmaster, Pennsylvania Railroad. Headquarters, Pittsburgh.

H. A. Palmer, assistant engineer, Toronto Terminal, Grand Trunk. Headquarters, Hamilton.

W. D. Peddicord trainmaster, Second District, Western Maryland. Headquarters, Elkins.

H. Plowman, supervisor of track, Grand Trunk. Headquarters, Milwaukee Junction, Mich.

W. G. Reid, general foreman shops, Arizona Eastern. Headquarters, Globe, Ariz.

J. S. Rice, trainmaster, East Iowa Division, Chicago & Northwestern Railway. Headquarters, Belle Plains, Iowa.

J. C. Rowe, superintendent of the South Omaha, Neb., shops of the Armour Car Lines.

G. W. Seidel, superintendent of motive power, Minneapolis & St. Louis. Headquarters, Minneapolis, Minn.

H. W. Shank, trainmaster, Western Maryland. Headquarters, Cumberland, Md.

J. G. Sheldrick, division engineer, Superior-Duluth Division, Minneapolis, St. Paul & Sault Ste. Marie. Headquarters, Superior, Wis.

F. P. Sisson, assistant engineer, Grand Trunk. Headquarters, Detroit, Mich.

H. E. Smith, general signal foreman of terminals, Louisville and Nashville, and Nashville,

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Chattanooga & St. Louis. Headquarters, Nashville, Tenn.

J. W. Smith, master mechanic, Great Northern Railway. Headquarters, Superior, Wis.

Nicholas Luke Smitham, assistant superintendent of motive power, Missouri, Kansas & Texas Railway. Headquarters, Denison, Texas.

Ned Spangler, trainmaster, New Orleans Division, Yazoo & Mississippi Valley Road. Headquarters, Baton Rogue, La.

C. G. Stecher, signal instructor, Chicago & North Western. Headquarters, Chicago.

L. I. Stone, assistant engineer, London Division, Grand Trunk. Headquarters, London, Ont.

T. A. Summerskill, superintendent of motive power, Central Vermont Railway. Headquarters, St. Albans, Vt.

C. H. Taylor, superintendent, St. Louis, Mo., shops of the Armour Car Lines.

D. S. Terry, construction engineer, Cleveland, Cincinnati, Chicago & St. Louis Ry., and the Peoria & Eastern Ry. Headquarters, Cincinnati, Ohio.

W. H. Thomas, assistant trainmaster, Pennsylvania Railroad. Headquarters, Conemaugh.

F. E. Watson, division engineer, Chicago, Rock Island & Pacific. Headquarters, Trenton, Mo.

William Welland, roadmaster, Cotton District, Iron Mountain. Headquarters, Batesville, Ark.

F. L. Wells, signal supervisor, Chicago Terminal, Chicago & North Western.

E. J. Wooten, trainmaster, Southern Railway. Headquarters, Knoxville, Tenn.

C. M. Zeth, assistant trainmaster, Pennsylvania Railroad. Headquarters, Derry.

Operation.

A. C. Adams, assistant superintendent of telegraph, Chicago, Milwaukee and St. Paul Railway. Headquarters, Chicago.

Guy L. Anderson, general manager, Sumpter Valley, Oregon-Washington Railroad & Navigation Company. Headquarters, Baker City, Oregon.

Herbert S. Balliet, assistant manager, Grand Central Terminal, New York Central & Hudson River. Headquarters, New York.

D. H. Battles, station master, Baltimore & Ohio. Headquarters, Pittsburgh.

R. R. Beasley, superintendent of Direct Navigation Co., a Southern Pacific property. Headquarters, Houston, Texas.

L. A. Boyd, superintendent, Raleigh, Charlotte & Southern. Headquarters, Biscoe, N. C.

E. F. Boyle, assistant superintendent, Galveston, Harrisburg & San Antonio, El Paso Division. Headquarters, El Paso, Texas.

E. N. Brown, division superintendent, Chicago & Eastern Illinois. Headquarters, Danville, Ill.

N. H. Brown, assistant superintendent of transportation, International Railway Company.

F. J. Byington, superintendent, West Iowa Division, Chicago & North Western. Headquarters, Boone, Iowa.

L. H. Cecil, superintendent, Louisiana Lines, Southern Pacific Company. Headquarters, Lafayette, La.

J. H. Chapman, assistant superintendent, Central of Georgia Railway. Headquarters, Macon, Ga.

S. H. Charles, superintendent, Oklahoma District, Missouri, Kansas & Texas. Headquarters, Oklahoma City.

G. H. Church, superintendent, Albany Southern Railroad.

F. Cone, assistant superintendent, LaCrosse Division, Chicago, Burlington & Quincy. Headquarters, LaCrosse, Wis.

J. T. Connor, assistant superintendent, Galveston, Harrisburg & San Antonio. Headquarters, San Antonio, Texas.

P. H. Conroy, superintendent, South Park Division, Colorado & Southern. Headquarters, Denver, Colo.

Caleb Corser, superintendent, Copper River & Northwestern Railway. Headquarters, Cordova, Alaska.

S. P. Coughlin, assistant superintendent, Houston East & West Texas and the Houston & Shreveport. Headquarters, Houston, Texas.

W. D. Deakins, assistant superintendent, Paducah-Memphis Division, Nashville, Chattanooga & St. Louis Ry. Headquarters, Paducah, Ky.

W. H. DeFrance, assistant general manager, Alabama-New Orleans Transportation Company. Headquarters, New Orleans, La.

Richard Joseph DeLong, assistant general manager, Pennsylvania Railroad. Headquarters, Philadelphia.

J. M. Doughty, assistant superintendent, Galveston, Harrisburg & San Antonio Railway. Headquarters, Victoria, Texas.

G. R. Farrell, yardmaster, Duluth, Winnipeg & Pacific. Headquarters, Virginia, Minn.

James E. Farrell, assistant to general manager, United Fruit Company and the Northern Railway (Costa Rica). Headquarters, San Jose, Costa Rica.

Omer L. Fisher, station master, Indianapolis Union Railway. Headquarters, Union Station.

R. L. Flynn, yardmaster, Duluth, Winnipeg & Pacific. Headquarters, West Duluth, Minn.

D. Gilmour, superintendent of terminals, Grand Trunk Railway. Headquarters, Montreal, Que.

D. J. Hackett, superintendent, Canada Division, Michigan Central. Headquarters, St. Thomas, Ont.

F. H. Hammil, superintendent, Chicago & Northwestern Railway. Headquarters, Boone, Iowa.

J. T. Haralson, assistant superintendent, Sonora Division, Southern Pacific of Mexico. Headquarters, Empalme, Mex.

John H. Harris, general manager, Peoria Railway Terminal Company. Headquarters, Peoria, Ill.

William Hayes, general superintendent, Carolina Railroad. Headquarters, Kinston, N. C.

George B. Herrington, assistant superintendent, Louisiana Lines, Southern Pacific. Headquarters, Lafayette, La.

J. C. Hill, roadmaster, Louisiana Western. Headquarters, Lafayette, La.

C. E. Hix, superintendent of transportation, Seaboard Air Line. Headquarters, Portsmouth, Va.

J. H. Hull, trainmaster, Chicago & North Western. Headquarters, Baraboo.

E. F. Kearney, office, general superintendent of transportation, Missouri Pacific-Iron Mountain system.

O. B. Keister, superintendent, Mobile Division, Southern Railway. Headquarters, Selma, Ala.

J. W. Knightlinger, assistant superintendent, Southern Pacific Company. Headquarters, New Orleans, La.

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G. A. Law, assistant superintendent, Hannibal Division, Chicago, Burlington & Quincy. Headquarters, St. Louis, Mo.

J. W. Layden, assistant superintendent, Chicago & North Western. Headquarters, Baraboo.

J. A. MacDonald, superintendent, Northern and LaCrosse Divisions, Chicago, Milwaukee & St. Paul. Headquarters, Milwaukee, Wis.

George McCormick, assistant general manager, Sunset-Central Lines of the Southern Pacific. Headquarters, Houston, Texas.

T. H. Meeks, chief dispatcher, Southern Pacific Company. Headquarters, Lafayette, La.

Fred M. Melin, superintendent, Hastings & Dakota Division, Chicago, Milwaukee & St. Paul. Headquarters, Aberdeen, S. D.

W. S. Middlemas, assistant superintendent, Louisiana Lines, Southern Pacific. Headquarters, Lafayette, La.

P. Minehan, trainmaster, entire division, Erie Railroad.

W. P. Moran, trainmaster, Chicago, Milwaukee & St. Paul. Headquarters, Savanna, Ill.

E. W. Morrison, superintendent, Chicago Division, Chicago, Milwaukee & St. Paul Railway. Headquarters, Chicago, Ill.

Paul Odell, superintendent, Springfield Division, Illinois Traction System.

J. M. Oxley, division superintendent, Chicago, Milwaukee & St. Paul. Headquarters, Ottumwa, Ia.

E. A. Patterson, superintendent of telegraph, Chicago, Milwaukee and St. Paul Railway. Headquarters, Milwaukee, Wis.

G. B. Perdue, trainmaster, districts 27 and 28, Grand Trunk. Headquarters, Durand, Mich.

G. C. Randall, superintendent of transportation, Colorado & Southern Railway. Headquarters, Denver, Colo.

Burton E. Reed, assistant to general manager, International Inter-locking Rail Joint Manufacturing Company.

J. H. Reich, superintendent, New Orleans, Texas & Mexico and St. Louis, Brownsville & Mexico. Headquarters, Houston, Texas.

J. S. Rice, trainmaster of East Iowa Division, Chicago & North Western. Headquarters, Belle Plaine, Iowa.

F. Ringer, superintendent, McAlester District, Missouri, Kansas & Texas. Headquarters, Parsons, Kansas.

George Ross, assistant superintendent, Oregon-Washington Railroad and Navigation Company. Headquarters, La Grange, Ore.

C. L. Ruppert, superintendent, Oklahoma Division, Chicago, Rock Island & Pacific. Headquarters, El Reno, Okla.

W. L. Smith, assistant superintendent, Wyoming Division, Colorado & Southern. Headquarters, Cheyenne, Wyo.

Stewart Starr, general manager, Savannah & Southern Railway. Headquarters, Letford, Ga.

C. G. Strecher, signal instructor, Chicago & North Western.

A. Syverson, superintendent, Ann Arbor Railroad. Headquarters, Owosso, Mich.

J. M. Teachworth, assistant superintendent, Houston & Texas Central, Houston East and West Texas and Houston & Shreveport. Headquarters, Houston, Texas.

N. P. Thurber, assistant superintendent, Prairie du Chien and Mineral Point Divisions, Chicago, Milwaukee & St. Paul Railway. Headquarters, Milwaukee, Wis.

William Ward, assistant superintendent, Chicago, St. Paul, Minneapolis & Omaha Railway. Headquarters, Spooner, Wis.

A. B. Warner, superintendent, Chicago, Rock Island & Gulf Railway. Headquarters, Ft. Worth, Texas.

W. B. Way, superintendent, Canadian Pacific Railway. Headquarters, Farnham, Que.

C. J. Wilson, superintendent, Duluth, Winnipeg & Pacific. Headquarters, Virginia, Minn.

E. W. Zimmerman, division operator, Pennsylvania Railroad. Headquarters, Pittsburgh.

Traffic.

C. R. Alvarez, commercial agent, Georgia, Florida & Alabama. Headquarters, Jacksonville, Fla.

James Paul Anderson, general passenger agent, Pennsylvania Railroad. Headquarters, Philadelphia, Pa.

W. W. W. Arthur, assistant to director of traffic, Southern Pacific. Headquarters, New York City.

H. W. Askew, division freight agent, New Orleans, Mobile & Chicago. Headquarters, New Orleans, La.

J. T. Baird, commercial agent, Central of Georgia. Headquarters, Oklahoma City, Okla.

F. B. Barnitz, division passenger agent, Pennsylvania Railroad. Headquarters, Philadelphia.

W. S. Basinger, general passenger agent, Union Pacific. Headquarters, Omaha, Neb.

David Nelson Bell, general passenger agent, Pennsylvania Railroad. Headquarters, Philadelphia.

W. H. Benham, general agent, Union Pacific System. Headquarters, Cleveland, Ohio.

George A. Bergen, coal traffic manager, Erie Railroad. Headquarters, New York City.

G. P. Bierman, traveling passenger agent, Union Pacific.

F. E. Binns, district passenger solicitor, Pennsylvania Railroad. Headquarters, Brooklyn, New York.

A. J. Blaisdell, general tourist agent, Canadian Pacific. Headquarters, Montreal.

J. S. Bloodworth, traveling passenger agent, Southern Railway Company. Headquarters, Macon, Ga.

S. F. Borrick, general agent, Union Pacific Railroad. Headquarters, San Francisco, Cal.

L. C. Bouchard, traveling freight and passenger agent, Southern Pacific. Headquarters, New Iberia, La.

George W. Boyd, passenger traffic manager, Pennsylvania Railroad. Headquarters, Philadelphia.

O. T. Boyd, division passenger agent, Pennsylvania Railroad. Headquarters, New York.

S. W. Bradford, commercial freight agent, Missouri Pacific-Iron Mountain. Headquarters, Monroe, La.

Warren Brown, general agent, El Paso & Southwestern system and the Morenci Southern. Headquarters, Memphis, Tenn.

H. B. Bryning, district passenger agent, Chicago Great Western. Headquarters, Kansas City, Mo.

A. E. Buchanan, division passenger agent, Pennsylvania Railroad. Headquarters, Harrisburg.

W. L. Buchanan, solicitor of milk traffic, Pennsylvania Railroad. Headquarters, Philadelphia.

H. B. Bull, chief claim agent, Illinois Central Railroad. Headquarters, Chicago, Ill.

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John H. Bunch, general freight and passenger agent, Copper River and Northwestern Railway and Alaska Steamship Company. Headquarters, Seattle, Wash.

W. M. Campion, commercial agent, C. C. & O. Railway. Headquarters, Cincinnati.

J. C. Carey, commercial agent, Toledo, St. Louis & Western Railroad Company. Headquarters, Memphis, Tenn.

W. G. Carmichael, traveling passenger agent, Union Pacific System. Headquarters, Pittsburgh, Pa.

James L. Chapman, traveling freight agent, Southern Pacific. Headquarters, Pittsburgh.

Frank C. Cheney, contracting freight agent, Seaboard Air Line Railway. Headquarters, Atlanta, Ga.

S. M. Childs, district passenger agent, St. Louis & San Francisco Railroad. Headquarters, Indianapolis, Ind.

A. B. Chown, traveling passenger agent, Grand Trunk. Headquarters, Pittsburgh, Pa.

F. E. Clarke, traveling passenger agent, Chicago & Alton. Headquarters, St. Louis, Mo.

W. M. Coble, solicitor agent, Macon, Dublin & Savannah. Headquarters, Jacksonville, Fla.

C. J. Collins, traveling passenger agent, Union Pacific. Headquarters, Cincinnati, Ohio.

H. C. Conley, assistant general freight agent, St. Louis & San Francisco. Headquarters, Oklahoma City.

C. A. B. Cooper, district passenger solicitor, Pennsylvania Railroad. Headquarters, Erie.

Arthur Corr, traveling freight agent, Lake Erie & Western. Headquarters, New York City.

J. L. Cox, assistant general freight and passenger agent, Southern Railway. Headquarters, Columbus, Miss.

J. F. Dalton, general freight and passenger agent, Carolina Railroad. Headquarters, Norfolk, Va.

R. J. DeLong, assistant general passenger agent, Pennsylvania Railroad.

H. F. DeTurk, traveling freight agent, Lake Erie & Western Railroad. Headquarters, San Francisco, Cal.

Edward Dowdle, traveling freight agent, Union Pacific System. Headquarters, St. Louis, Mo.

Thomas M. Doyle, chief clerk passenger department, Texas & Pacific Railroad. Headquarters, Dallas, Texas.

P. F. Dunn, soliciting freight agent, Southern Pacific Company.

Edgar Easter, assistant passenger agent, Pennsylvania Lines. Headquarters, Columbus.

E. W. Eichenberger, traveling freight agent, Lehigh Valley Railroad. Headquarters, Pittsburgh, Pa.

J. K. Ellis, claim agent, M. K. & T. Railroad. Headquarters, Waco, Texas.

Herbert J. Farber, traveling freight agent, Union Pacific System. Headquarters, Pittsburgh, Pa.

H. J. Farbu, traveling freight agent, Union Pacific. Headquarters, Pittsburgh, Pa.

B. P. Frazer, division passenger agent, Pennsylvania Railroad. Headquarters, Buffalo, New York.

Benjamin G. Freeman, agent, Lehigh Valley Railroad. Headquarters, Delano, Pa.

W. F. Freeman, soliciting freight agent, Georgia Southern & Florida. Headquarters, Atlanta, Ga.

C. E. Gopp, traveling freight agent, St. Louis Southwestern. Headquarters, Pittsburgh.

D. G. Gray, general western freight agent, Western Maryland. Headquarters, Pittsburgh, Pa.

John Gray, freight agent, Grand Trunk. Headquarters, Toronto, Ont.

W. P. Harriman, district passenger solicitor, Pennsylvania Railroad. Headquarters, New York.

Claude M. Harwood, city passenger and ticket agent, Grand Trunk Railway. Headquarters, Detroit, Mich.

George B. Haynes, general passenger agent, Chicago, Milwaukee & St. Paul. Headquarters, Chicago.

N. D. Hoke, traveling freight agent, Lake Erie & Western. Headquarters, Philadelphia, Pa.

C. E. Horning, division passenger agent, Grand Trunk. Headquarters, Toronto.

Henry B. Hull, chief claim agent, Illinois Central Railroad Company. Headquarters, Chicago, Ill.

V. N. Hutchinson, traveling freight and passenger agent, Southern Railway. Headquarters, Columbus.

Robert John, soliciting freight agent, Gulf, Colorado & Santa Fe. Headquarters, Houston, Texas.

C. G. Johnson, commercial agent, Missouri Pacific-Iron Mountain. Headquarters, Jefferson City, Mo.

E. S. Johnson, commercial agent, Macon, Dublin & Savannah. Headquarters, Jacksonville, Fla.

E. G. Jones, city passenger agent, Louisville & Nashville. Headquarters, Louisville, Ky.

Harvey E. Jones, general agent, Mobile & Ohio. Headquarters, Mobile.

Thomas J. Kay, traveling passenger agent, Union Pacific System. Headquarters, Detroit, Mich.

E. L. Kemp, local freight agent, Illinois Central. Headquarters, Chicago, Ill.

W. V. Kibbe, district passenger solicitor, Pennsylvania Railroad. Headquarters, New York.

J. J. Kientz, city passenger agent, Union Pacific System. Headquarters, Pittsburgh, Pa.

W. H. Kirkwood, tariff inspector, Louisiana Lines, Southern Pacific. Headquarters, New Orleans, La.

John J. Klenke, traveling freight agent, Union Pacific System. Headquarters, Cincinnati, Ohio.

W. C. Knowles, traveling passenger agent, Union Pacific. Headquarters, Cincinnati.

C. A. Land, general agent, Atlanta, Birmingham & Atlantic. Headquarters, Talladega, Ala.

E. J. Lewis, traveling freight agent, Lake Erie & Western Railroad. Headquarters, Minneapolis, Minn.

T. L. Lipsett, district passenger solicitor, Pennsylvania Railroad. Headquarters, Washington, D. C.

N. S. Longaker, district passenger solicitor, Pennsylvania Railroad. Headquarters, Wilmington, Del.

Emerson Lucas, commercial agent, Southern Railway. Headquarters, Washington, D. C.

C. A. Lund, general agent, A. B. & A. Headquarters, Talladega, Ga.

P. C. McCauley, limited ticket agent, Union Pacific Railroad. Headquarters, Seattle, Wash.

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C. E. McCullough, district passenger solicitor, Pennsylvania Railroad. Headquarters, Newark, N. J.

Robert E. McDonnell, contracting freight agent, Southern Pacific. Headquarters, Cincinnati.

Frank P. McEwen, commercial agent, C. C. & O. Railway. Headquarters, Cincinnati.

L. F. McFarland, traveling passenger agent, Southern Pacific. Headquarters, Kansas City.

Bernard McNeff, traveling passenger agent, C. H. & D. Headquarters, Dayton, Ohio.

Bennett Maas, commercial agent, Macon, Dublin & Savannah. Headquarters, Savannah, Ga.

J. M. Meuden, traveling passenger agent, Southern Pacific.

John W. Miller, general passenger agent, Kansas City, Clay County & St. Joe Railway. Headquarters, Kansas City.

F. C. Moore, general eastern agent, Chicago & Alton. Headquarters, New York City.

Lloyd Moore, traveling immigration agent, Northern Pacific. Headquarters, Kansas City.

L. W. Mosher, commercial agent, Missouri, Kansas and Texas Railway. Headquarters, Oklahoma City, Okla.

W. F. Mundee, contracting freight agent, Macon, Dublin & Savannah. Headquarters, Jacksonville, Fla.

Tracy Musson, general agent, M. C. & G. Headquarters, Joplin, Mo.

S. A. Myers, district passenger agent, Union Pacific System. Headquarters, Pittsburgh, Pa.

Robert Nalsh, traveling freight agent, Norfolk & Western Railway. Headquarters, Indianapolis, Ind.

I. Elkin Nathans, milk traffic agent. Pennsylvania Railroad Company. Headquarters, Philadelphia.

W. H. L. Nelms, commercial agent, Georgia & Florida. Headquarters, Atlanta, Ga.

Samuel B. Newton, district passenger solicitor, Pennsylvania Railroad. Headquarters, Altoona, Pa.

Tom O'Connell, traveling freight agent, Wabash Railroad. Headquarters, Detroit, Mich.

C. H. Pearson, assistant general freight agent, Alabama Great Southern. Headquarters, Birmingham, Ala.

William Pedrick, Jr., division passenger agent, Pennsylvania Railroad. Headquarters, Baltimore.

R. C. Perkins, soliciting freight agent, Missouri & North Arkansas. Headquarters, New Orleans, La.

C. C. Phillips, traveling freight agent, Union Pacific System. Headquarters, Pittsburgh, Pa.

R. H. Phinney, general agent, the Frisco. Headquarters, Muskogee, Okla.

R. M. Pile, assistant general passenger agent, Pennsylvania Railroad.

J. L. Pope, city passenger and ticket agent. Headquarters, Galveston.

E. B. Range, agent, Lehigh Valley Railroad. Headquarters, Lima, N. Y.

J. F. Reily, commercial agent, Missouri, Kansas and Texas Railway. Headquarters, Sedalia.

Lucian T. Rice, commercial agent, Louisville, Henderson & St. Louis. Headquarters, Louisville, Ky.

F. W. Robinson, assistant traffic manager, Oregon-Washington Railroad & Navigation Company. Headquarters, Portland, Oregon.

Verner B. Rogers, agent, Lehigh Valley Railroad. Headquarters, Flemingville, N. Y.

J. J. Rose, Canadian passenger agent, Union Pacific Railroad. Headquarters, Toronto, Ont.

C. R. Rosenberg, district passenger solicitor, Pennsylvania Railroad. Headquarters, Atlantic City, N. J.

J. A. Sands, traveling freight agent, Lake Erie & Western. Headquarters, Kansas City, Mo.

Rudolph Schneider, soliciting freight agent, Missouri & North Arkansas Railway. Headquarters, New Orleans.

D. M. Sheaffer, district passenger solicitor, Pennsylvania Railroad. Headquarters, Philadelphia.

F. C. Sheahan, traveling freight agent, New York Central Lines. Headquarters, Davenport, Ia.

Joseph L. Sheppard, general freight agent, Illinois Central Railroad. Headquarters, Memphis, Tenn.

Thomas G. Smiley, freight traffic manager, Western Maryland. Headquarters, Baltimore, Md.

W. H. Smith, freight agent, Northern Pacific. Headquarters, Minneapolis.

W. H. Stakelum, division freight and passenger agent, Southern Pacific. Headquarters, Lake Charles, La.

R. L. Stall, district pasenger solicitor, Pennsylvania Railroad. Headquarters, New York.

Wendell H. Stallings, soliciting agent, Louisville and Nashville Railroad Company. Headquarters, Birmingham, Ala.

A. V. Stevenson, freight agent, Union Pacific Railroad. Headquarters, Oakland, Cal.

George W. Stolz, traveling freight agent, St. Paul Line.

H. C. Strohm, traveling passenger agent, Baltimore & Ohio. Headquarters, Omaha, Neb.

Colin Studds, assistant general passenger agent, Pennsylvania Railroad. Headquarters, Philadelphia, Pa.

F. B. Swope, traveling freight agent, Union Pacific System. Headquarters, Cincinnati, Ohio.

H. J. Tarbu, traveling passenger agent, Union Pacific Railroad. Headquarters, Pittsburgh, Pa.

David Todd, division passenger agent, Pennsylvania Railroad. Headquarters, Williamsport.

L. M. Tudor, commercial agent, Union Pacific Railroad. Headquarters, Pueblo, Colo.

G. E. Tunstal, traveling freight agent, the Burlington. Headquarters, Kansas City.

G. T. Tuten, general claim agent, Savannah & Southern Railway. Headquarters, Letford, Ga.

George G. Walker, city passenger and ticket agent, Southern Railway. Headquarters, Savannah, Ga.

R. C. Wallis, division passenger agent, Louisville & Nashville. Headquarters, St. Louis, Mo.

George W. Watson, passenger agent, Grand Trunk. Headquarters, Bay City, Mich.

H. W. Watson, freight soliciting agent, Southern Railway. Headquarters, Nashville, Tenn.

A. C. Weile, district passenger solicitor, Pennsylvania Railroad. Headquarters, Reading, Pa.

Fred C. Wherrett, traveling passenger agent, Grand Trunk Railway. Headquarters, Detroit, Mich.

E. H. Williams, traveling freight agent, Southern Pacific Company.

C. P. Wilson, soliciting freight agent, Missouri, Oklahoma & Gulf Railway. Headquarters, Dallas, Texas.

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H. A. Wilson, general agent, Union Pacific Railroad. Headquarters, Los Angeles, Cal.

James O. Young, special agent, Illinois Central, Southern District. Headquarters, New Orleans, La.

E. Yungman, division passenger agent, Pennsylvania Railroad. Headquarters, Pittsburgh.

J. I. Zempke, traveling passenger agent, Louisville & Nashville. Headquarters, Cleveland.

Industrial.

C. W. Hitch, agent, land and industrial department, Southern Railway. Headquarters, Macon, Ga.

W. B. Wells, industrial agent, Frisco Lines. Headquarters, St. Louis, Mo.

Purchasing.

Joseph J. Bennett, assistant purchasing agent, Illinois Central. Headquarters, Chicago.

E. B. Dailey, assistant to director of purchases, Southern Pacific Company. Headquarters, New York.

H. B. Henry, assistant to director of purpurchases, Southern Pacific Railway. Headquarters, New York.

James E. Kilborn, purchasing agent and storekeeper, Rutland Railroad. Headquarters, Rutland, Vt.

A. F. McCool, assistant purchasing agent, South Texas and Louisiana Lines, St. Louis & San Francisco. Headquarters, Houston, Texas.

William G. Phelps, assistant purchasing agent, Pennsylvania Lines. Headquarters, Pittsburgh, Pa.

Miscellaneous.

George K. Andrews, commissioner of agriculture, with supervision over the lines of Missouri Pacific. Headquarters, St. Louis, Mo.

Dr. J. E. Becknell, medical examiner, Western Division, Pennsylvania Lines. Headquarters, Fort Wayne, Ind.

Prof. E. R. Bennett, horticulturist, Rock Island Lines.

W. E. Birch, field agent, department farm improvement work, Southern Railway. Headquarters, Asheville, N. C.

Ashleigh P. Boles, horticulturist commissioner, the Frisco. Headquarters, Springfield, Ohio.

S. M. Byars, field agent, department farm improvement work, Southern Railway. Headquarters, Asheville, N. C.

Edgar E. Clark, chairman, Interstate Commerce Commission.

W. B. Crabtree, chief special agent, Nashville, Chattanooga and St. Louis. Headquarters, Nashville.

Clyde C. Dibble, general storekeeper, Cleveland, Cincinnati, Chicago & St. Louis Ry., the Peoria & Eastern Ry., and the Cincinnati Northern Railroad. Headquarters, Beech Grove, Ind.

Marcus A. Dow, general safety agent, New York Central Lines.

W. L. English, superintendent of agriculture, the Frisco.

Louis J. Folse, Jr., assistant commissioner of freight and transportation, New Orleans Board of Trade.

W. M. Fryar, special agent, Nashville, Chattanooga and St. Louis.

U. K. Hall, general storekeeper, Oregon-Washington Railroad and Navigation Company. Headquarters, Portland, Oregon.

George A. Hawkes, representative, Southern Pacific Company. Headquarters, Salt Lake City.

Alfred H. Holmead, assistant secretary, Interstate Commerce Commission.

Myer Hurley, member, Public Utilities Commission of Kansas.

S. E. Keillor, storekeeper, Duluth, Winnipeg & Pacific. Headquarters, Duluth.

Andrew R. Lewis, custodian, Indianapolis Union Railway.

Clarence H. Lodge, advertising agent, Gulf, Colorado and Santa Fe Railway. Headquarters, Galveston, Texas.

T. J. Love, fuel agent, Canadian Northern and Duluth, Winnipeg & Pacific. Headquarters, Winnipeg, Man.

George B. McGinty, secretary, Interstate Commerce Commission.

Frank T. Magan, representative, Nickel Plate and D. L. & W. Railroads. Headquarters, Chicago.

L. A. Markham, commissioner of agriculture, St. Louis, Iron Mountain & Southern. Headquarters, Little Rock, Ark.

Allan Pollak, superintendent of dining cars, hotels and restaurants, Pacific System, Southern Pacific. Headquarters, San Francisco, Cal.

R. L. Sliger, advertising agent, Southern Pacific. Headquarters, New Orleans.

J. F. Stewart, inspector of efficiency, Pittsburgh Division, Pennsylvania Railroad.

G. S. Ward, chief special agent, Seaboard Air Line Railway. Headquarters, Norfolk, Va.

J. S. Webster, chief special agent, Southern Pacific Lines.

F. S. White, special agent, Frisco. Headquarters, Springfield, Mo.

RESIGNATIONS.

Executive.

Roger Campbell, director, Galveston, Houston and Henderson Railroad.

George J. Gould, director, Galveston, Houston and Henderson Railroad.

William G. McAdoo, president and director, Hudson and Manhattan Railroad.

Henry F. Shoemaker, director, Cincinnati, Hamilton & Dayton Railway.

Financial.

Henry L. Gray, chief engineer, Public Service Commission, State of Washington.

J. M. Jones, treasurer for receivers, Kansas City, Mexico & Orient Ry.

D. J. Kerr, secretary and treasurer, Houston & Brazos Valley Railroad.

Alexander Millar, secretary, Pacific Mail Steamship Company.

Engineering and Mechanical.

Weber H. Arkenburgh, general signal inspector, Chicago, Rock Island & Pacific.

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M. C. Byers, chief engineer, operation, St. Louis and San Francisco Railroad Company.

A. B. Chadwick, in charge of shops, Armour Car Lines.

J. H. Clark, signal inspector, Louisville & Nashville and the Nashville, Chattanooga & St. Louis.

C. A. Dunham, signal engineer, Grand Trunk Railway.

H. A. Gardiner, electrical engineer, Chicago, Burlington & Quincy Railroad.

E. S. Heyser, trainmaster and roadmaster, St. Louis, Brownsville & Mexico.

Walter H. Lienesch, consulting engineer, Illinois Traction System.

Abram Lucas, general foreman, locomotive department, Chicago, Milwaukee & St. Paul.

W. T. Main, division engineer, Chicago & Northwestern Railway.

Y. M. Martin, trainmaster, Missouri, Kansas & Texas Railway of Texas.

John R. Rison, Jr., trainmaster, New Orleans Division, Yazoo & Mississippi Valley.

J. W. Small, assistant general manager (mechanical), Galveston, Harrisburg & San Antonio, the Houston & Texas Central, the Houston East & West Texas, the Houston & Shreveport, and the Texas & New Orleans.

F. W. Smith, construction engineer, Cleveland, Chicago & St. Louis Ry., and the Peoria & Eastern Railway.

A. Syverson, trainmaster, East Iowa Division, Chicago & North Western.

Watson Townsend, assistant engineer, Union Pacific.

H. C. Van Buskirk, master mechanic, Atchison, Topeka & Santa Fe.

F. B. Walker, resident engineer at St. Paul, Great Northern.

Operation.

L. Acker, roadmaster, Houston & Texas Central.

J. W. Anderson, assistant superintendent, Oregon-Washington Railroad & Navigation Company.

F. R. Blount, superintendent, the Katy.

L. A. Boyd, general manager, Augusta Northern.

R. A. Crofton, assistant superintendent, Houston & Texas Central, Houston East & West Texas, and Houston & Shreveport.

George Geiger, superintendent, Copper River & Northwestern.

H. G. Harden, assistant superintendent, Louisiana Lines, Southern Pacific.

J. F. Hickey, superintendent, McAlester District, Missouri, Kansas & Texas.

W. M. Hobbs, general superintendent, Morgan's Louisiana & Texas Line.

C. W. Houston, superintendent, Duluth, Winnipeg & Pacific.

J. V. McCullough, soliciting agent, Louisville & Nashville.

J. E. McLean, assistant superintendent, Galveston, Harrisburg & San Antonio.

E. L. Martin, assistant superintendent, Louisiana Western Railroad and Morgan's Louisiana & Texas Railroad & Steamship Company.

J. W. Moore, roadmaster, Morgan's Louisiana & Texas Railroad and Steamship Company.

T. L. Morse, superintendent, Direct Navigation Company.

J. C. Muir, superintendent, Chicago Division, Chicago & Eastern Illinois Railroad.

A. B. Newell, general manager, Tennessee Central Railroad.

P. G. Richelson, station master, Baltimore & Ohio.

J. F. Sanders, assistant superintendent, Louisiana Lines, Southern Pacific.

R. W. Scott, superintendent, Montreal terminals, Grand Trunk.

J. M. Shea, general superintendent, Seaboard Air Line.

J. W. Small, assistant general manager in charge of motive power, Southern Pacific Lines.

Traffic.

L. F. Barron, local freight agent, Illinois Central.

W. W. Breedlove, general agent, A. B. & A.

H. B. Bryning, traveling immigration agent, Northern Pacific.

W. B. Butler, soliciting freight agent, Georgia Southern & Florida.

A. C. Carper, traveling freight agent, Frisco.

T. J. Crossan, agent, Lehigh Valley Railroad.

F. M. Curry, commercial agent, Missouri Pacific-Iron Mountain Railway.

J. E. Davenport, division passenger agent, Louisville & Nashville.

M. H. Dorsett, commercial agent, Macon, Dublin & Savannah.

R. H. Dozier, commercial agent, Georgia, Florida & Alabama.

A. E. Duff, division passenger agent, Grand Trunk Railway.

Earl Z. Giblon, traveling passenger agent, Union Pacific System.

J. J. Glasford, agent, Lehigh Valley Railroad.

John F. Harvey, commercial agent, Central Savannah.

W. T. Holley, traveling passenger agent, Union Pacific.

R. D. T. Hollowell, commercial agent, C. C. & O. Ry.

C. J. Jones, traffic manager, Copper River and Northwestern Railway Company and Alaska Steamship Company.

E. C. Jones, commercial agent, Louisville, Henderson & St. Louis.

Harvey E. Jones, assistant general passenger agent, Southern Railway.

Lyon Liston, traveling freight agent, Union Pacific System.

J. V. McCullough, soliciting agent, Louisville and Nashville Railroad Company.

L. F. McFarland, district passenger agent, Chicago Great Western.

J. M. Mauden, traveling passenger agent, Chicago & Alton.

W. J. Pfeil, agent, Lehigh Valley Railroad.

R. M. Pyle, assistant general passenger agent, Pennsylvania Railroad.

S. C. Sigler, traveling freight agent, Union Pacific System.

C. D. Smith, general live stock agent, International & Great Northern and Texas Pacific Railway.

A. H. Swanson, city passenger agent, M. K. & T.

C. E. Trust, soliciting freight agent, Missouri & North Arkansas Railway.

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Industrial.

F. A. Moore, agent of land and industrial department, Southern Railway.

Purchasing.

A. E. Douglas, purchasing agent and storekeeper, Rutland Railroad.

J. L. White, assistant purchasing agent, South Texas and Louisiana Lines.

Miscellaneous.

George Bradshaw, general safety agent, New York Central Lines.

J. E. Mahaney, general storekeeper, Oregon-Washington Railroad and Navigation Company.

D. Urquhart, superintendent, dining cars, hotels and restaurants, Pacific System of Southern Pacific.

OBITUARY.

Alton Augier, formerly general passenger agent of the W. & A. at Atlanta, Ga., and since then in the government service, died recently at his home, Washington, D. C.

Milton H. Brame, civil engineer of the M. K. & T., died February 26th at the Baptist Sanitarium, at New Orleans.

Albert S. Brandeis, general solicitor of the Louisville & Nashville R. R., died at his home in Louisville, Ky., March 4th, at the age of 54.

Otto Brendler, trainmaster of the Chicago Milwaukee & St. Paul Railway, at Green Bay, Wis., died February 28th, at the age of 51.

John J. Cairns, passenger agent of the Chicago, Milwaukee & St. Paul at Chicago, died in that city on February 18th, as result of injuries received when he was struck by a train on the Northwestern Elevated Railroad the evening before. Mr. Cairns was 60 years old.

John W. Crissey, assistant engineer of construction of the Lake Shore & Michigan Southern, with headquarters at Cleveland, Ohio, died on March 7th, at Chicago. Until a month ago, Mr. Crissey had been resident engineer of the Lake Shore at Chicago, when he went to Cleveland to take charge of track elevation work.

Edward H. Eden, for twenty years identified with the Delaware, Lackawanna & Western Railroad in the northwest and for twelve years commercial agent, with headquarters in Minneapolis, died at Minneapolis the 10th, aged 43 years.

L. B. Fallansbee, supervisor for the Illinois and Iowa demurrage bureau, died at his home in Peoria. Mr. Fallansbee was regarded as an authority on demurrage matters.

Urias J. Fry, 65 years old, superintendent of telegraph, C., M. & St. P., died in Milwaukee, Wis., February 22d. Mr. Fry was well known in the telegraph field and served one term as president of the Old Time Telegraphers' Historical Association. He had been with the C., M. & St. P. since 1874.

J. E. Jenkins, city ticket agent of the Burlington Route, and well known throughout Pacific Coast railroad circles, died in Los Angeles, February 27th.

C. I. Kerr, trainmaster of the Chicago, Rock Island & Pacific, with headquarters at Herington, Kan., died suddenly on March 5th, at Topeka, Kan.

Robert Law, formerly for many years connected with the Burlington system, and afterwards vice-president and general manager of the Colorado & Northwestern, died on February 7th, at Los Angeles, Cal., aged 61 years.

Superintendent J. Lassiter, of the Southern Railroad, headquarters Selma, Ala., died at Meridian, Miss., February 27th in his private car. He was fifty-three years old and was superintendent of the Southern Railroad between Meridian and Selma.

William Riley McKeen, who was president of the Terre Haute & Indianapolis, now the Vandalia, from 1867 to January 15, 1896, died at Terre Haute, Ind., on February 18th. Mr. McKeen was born on October 12, 1829, in Vigo County, Ind. He was the father of Benjamin McKeen, general manager of the Pennsylvania Lines west of Pittsburgh, and of W. R. McKeen, Jr., consulting engineer of motor cars on the Union Pacific.

Arthur W. Moss, division superintendent of the Pennsylvania Railroad, at Reading, Pa., died suddenly March 12th. Mr. Moss was born at Philadelphia, Pa., May 4, 1859. He was educated at Germantown Academy and Phillips Academy and entered railway service as an apprentice in the Altoona shops of the Pennsylvania, December, 1877. Since that time he has served consecutively as draftsman, assistant road foreman of engines, trainmaster and division superintendent. From January, 1893, to January, 1899, Mr. Moss was superintendent of the Frederick Division at York, Pa., and then became superintendent of the Schuylkill Division at Reading.

John R. Price, pioneer railway builder, died at his home, Turon, Kan., aged 85. He was the builder of a large portion of the Santa Fe system, including the A. & P. line through New Mexico and Arizona, the Gulf Line from Arkansas City, through Oklahoma to the Texas Line; 60 miles of the main line to Chicago, and several branches in Kansas. Mr. Price also constructed considerable portions of the Iowa Central, Chicago & Alton, and St. Louis & Omaha Railways. His firm built the Rock Island into Colorado Springs, constructed portions of the Colorado Midland, and built the carriage road to the top of Pike's Peak.

One of the largest railway contracts held by Mr. Price during his busy life was the construction of a railroad from San Luis Potosi to Tampico, Mexico, for the Mexican Central, and another from Venandito to Tampico.

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James McCrea.

JAMES McCREA, who until January 1st, had been president of the Pennsylvania Railroad for six years, died at his home in Ardmore, Pa., on the evening of March 28th. He was sixty-five years old.

Mr. McCrea was a graduate of the University of Pennsylvania, and the Pennsylvania Polytechnic College, where he acquired his education in civil engineering. He entered the employ of the Pennsylvania Railroad Company in June, 1865, as rodman and assistant engineer of the Connellsville and Southern Pennsylvania Railroad, in which position he served until December, 1867, when he became rodman on the construction of the Wilmington and Reading Railroad. In September, 1868, he was engaged as assistant engineer on the Allegheny Valley Railroad where he remained until March, 1871.

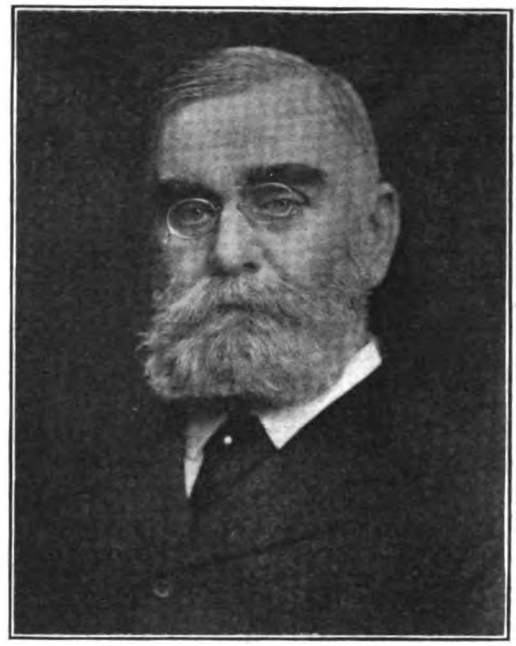
Upon that date he entered the service of the Pennsylvania Railroad as principal assistant engineer in the construction department.

From that time on his career is marked with a succession of dates that indicate his rapid advancement through all the intermediate positions from the lowest to the highest in the Company's service. On August 1, 1874, Mr. McCrea was transferred to the position of assistant engineer of maintenance of way of the Philadelphia Division, becoming superintendent of the middle division on January 1, 1875, and assuming the important position of superintendent of the New York Division on October 15, 1878.

Mr. McCrea began life-long connection with the Western Lines of the Pennsylvania System as manager of the Southwest system, with headquarters at Columbus, O., May 1, 1882. He was advanced to the post of general manager of all the Pennsylvania Lines west of Pittsburgh, October 10, 1885. He then became fourth vice-president on October 19, 1887; second vice-president, March 1, 1890, and first vice-president, April 23, 1891.

For sixteen years Mr. McCrea held this position and maintained a close supervision of all the problems of transportation, engineering, finance and traffic. The marked development of the lines west of Pittsburgh attested his wonderful energy. Upon the election of A. J. Cassatt as president of the company, June 9, 1899, Mr. McCrea was elected director of the Pennsylvania Railroad Company, and on January 2, 1907, upon the death of Mr. Cassatt, Mr. McCrea became president of the Pennsylvania Railroad Company. Shortly after assuming the presidency, Mr. McCrea was elected president of the Philadelphia, Baltimore and Washington Railroad Company, the Northern Central Railroad Company, the West Jersey and Seashore Railroad Company, and the Pittsburgh, Cincinnati, Chicago and St. Louis Railroad Company.

James McCrea was essentially a self-made man. Starting at the very bottom he soon displayed those incomparable qualities that stamped him the great man that he was. Taking up the vast work that the great A. J. Cassatt had left only partially completed, and with a vast number of contemplated improvements calling for an enormous amount of capital, Mr. McCrea ably carried on the work. With his resignation effective January 1, 1913, he stepped out of office after a railroad service of forty years.



JAMES McCREA.

William Randall, auditor of freight and ticket accounts of the Chicago, Burlington & Quincy, with headquarters at Omaha, Neb., died in that city on February 7th, at the age of 71 years. Mr. Randall had been in the service of the Burlington system since 1872, and had been auditor of freight and ticket accounts since 1875.

Charner T. Scaife, chief claim agent of the Illinois Central Railroad, died March 10th. Mr. Scaife was born at Columbia, S. C., February 1, 1855.

William Singer, Jr., for years land attorney for the Southern Pacific, died in San Francisco, February 12th. He was born in St. Louis, October 5, 1850, and in 1852 his parents emigrated and settled in Marysville, Cal. Thirty-five years ago he joined the railroad company's staff.

Robert Bicknell Seymour, formerly chief engineer of the Chicago, Indiana & Southern, died at his home in Oak Park, Chicago, on February 23d, at the age of 53 years.

William N. D. Winne, comptroller of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, died on February 24th, in Florida. He was born October 11, 1850, at Schenectady, N. Y., and was educated in the public schools of his native town and at Madison, Wis., and in private schools at Milwaukee. He began railway work in 1863 as junior clerk in the auditor's office of the Milwaukee & Prairie du Chien and continued with that road until its absorption by the Chicago, Milwaukee & St. Paul. From September, 1882, to September, 1890, he was assistant general auditor of the Chicago, Milwaukee & St. Paul. He became general auditor in 1890, and was appointed comptroller in July, 1910.

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STATE COMMISSIONS.

Alabama.—The Railroad Commission ordered the Louisville and Nashville Railroad to restore the two and one-half cent passenger rate in Alabama on March 6th. Announcement has been made by the Louisville and Nashville that it will not abide by the order of the Commission and that the case will be carried to the Federal Court. It is further intimated that the railway will take the matter to the Supreme Court of the United States before making the concession.

California.—The California Commission has decided that if the Union Southern and Central Pacific Railroads make any trackage agreement or lease, they must grant equal rights to any other trans-continental road entering California. This means that the Benicia cut-off, the terminals of San Francisco Bay and the industry tracks may be used by the Western Pacific or by any new trans-continental roads that may enter the State.

The Commission has issued a rule to the effect that the order relating to the posting of tariffs at stations will not apply to tariff publications confined to information as to the numbers, dimensions and capacities of freight cars, except that such publication shall be placed on file by carriers at points where complete files of tariff publications are kept

Maryland.—The Public Service Commission has granted permission to the Western Maryland Railway Terminal Company to issue $300,000 in stock under the terms of its charter granted by the Legislature in 1882. In its order of approval, the Commission stipulates that reports must be made semi-annually as to the sale of the stock and disposition of the proceeds.

The Public Service Commission has passed an order approving the proposed issue of the twenty-year four and one-half per cent convertible gold bonds of the Baltimore and Ohio. This compromise has been arrived at by the Baltimore and Ohio agreeing to accept this order subject to the decision of the Upper Court, as to whether the Commission has authority to pass on such issues. The railroad claims it is exempt from such authority under its charter rights and this claim has been preliminarily upheld by the lower Courts.

Massachusetts.—A sub-committee of the Joint Committee on Railroads of the State Legislature has submitted a bill to the full Committee designed "to change the name, enlarge the membership and increase the power of the railroad commissioners." Proposed draft increases commissioners from three to five, raises their salaries and gives them supervision over telephone and telegraph companies now resting with the highway commission.

Illinois.—Figures recently published by the State Railway Commission, show that the total number of persons injured during the year on the railroads of the State, was 13,593, an increase of 1,729 over the previous year. Of this number 1,095 were injured on the surface and electric lines and 12,498 on the steam roads. The number killed during the year was 900 on both steam and electric lines. This represents a decrease of 46 as compared with the previous year.

Ohio.—For the purpose of paying outstanding indebtedness, making improvements and purchasing new rolling stock the Public Service Commission has granted authority to the Big Four Railroad to issue $7,000,000 of four per cent bonds.

New York.—The up-State Public Service Commission has opened correspondence with various railroad companies in the State in an effort to have such companies supply suitable individual drinking cups on its trains.

Approval has been given by the Commission to the New York Central & Hudson River Railroad Company to consolidate the following companies: Spuyten Duyvil & Port Morris, Gouverneur & Oswegatchie, New York and Putnam, Tivoli Hollow, Buffalo, Erie Basin and New York Central, Niagara River Railroad Companies, Mohawk & Malone, Carthage and Adirondack, and New York & Ottawa Railway Companies and the Tonawanda Island Bridge Company.

The Commission has refused the application of the New York Central and the New York, New Haven & Hartford Railroad for rehearing on the recent order reducing commutation rates between New York City and points in Westchester County

Pennsylvania.—The State Commission has appointed an expert accountant to make a searching examination of the books and records of the Pennsylvania Railroad and the Philadelphia and Reading for the purpose of finding out the cost to the carrier of the transportation of anthracite coal from the mines to Philadelphia. The appointment of the accountant has met with the approval of these roads and he will be given all the assistance necessary to procure the facts.

The Commission has approved the recommendation of its marshal, that rule No. 24 on the Lehigh Valley Railroad ought to be revised so that a light shall be displayed on the dead end of trains when it is necessary to shift cars by night over a public crossing.

Texas.—The Railway Commission has issued an order directing every railroad operating in Texas to file with the Commission a detailed statement showing expenditures for additions and betterments made upon and to the benefit of such railroad property since the date of original valuation; such statement to show the expenditures for each fiscal year ending June 30th, including the last fiscal year. The statement must be made and filed with the Commission within the next thirty days.

The Commission will give a public hearing on April 8th on the proposition of revising the demurrage rules. A number of changes are proposed, and if adopted they will affect shippers and the railroads in the Southwest in several important particulars.

LEGAL.

Suits Under the Federal Law.—Rumors are current that the Federal Government plans to institute several thousand suits against various railroads for alleged violation of the sixteen-hour law. Whether this be true or not, the astonishing large number of fines to which the railroads have recently been subjected and the suits

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which are now pending, indicate that many important roads are either lax in their efforts to comply with the federal statutes or else are finding it a practical impossibility to do so. Fines pending or imposed during the past few weeks run well up into the hundreds of thousands and include convictions for rebating, violation of the hours of service law, and the safety appliance law. With one branch of the service painstakingly explaining to railroad employes how many tons of freight can be moved a mile by employing more carefully the stubs of lead pencils and putting in operation other saving methods, it appears rather incongruous that the railroads should be regularly paying out thousands of dollars to the Federal Government for the non-adherence to the statutes. Unquestionably, many of these laws inflict a real hardship and cause an extra expense which is not justified by operating conditions. It would, however, appear a cheaper and wiser course to pursue, to make every effort to comply with them.

Recent Supreme Court Rulings.—The Supreme Court has recently issued a number of rulings of interest to railway officials.

In accordance with the principle that Federal law rather than State law, controls contracts for the shipment of goods from State to State, as announced recently in an express rate case, this Court has decided that railroads carrying household goods from one State to another may make valid contracts to limit their liability in cases of loss or damage.

The Court also decided in another case that the roads may require in bills of lading that suits for loss or damages be brought within ninety days. In the former case Arkansas Courts were overruled and the latter upset the Texas decisions.

The Supreme Court has granted the request of the Government to review the decision of the Federal Courts in New York in the street railway cases, to decide if corporations in the hands of receivers are required to pay the corporation tax.

Other cases decided are as follows:

Holding unconstitutional, as interfering with interstate commerce the Arkansas statute of 1907, requiring railroads to give notice of the arrival of a shipment.

Directing the dismissal of the suit of the St. Louis, Iron Mountain and Southern Railway Company attacking the validity of the Barker Act of Arkansas, which required the furnishing of cars upon request of shippers.

The contest between the Northern Pacific Railroad Company and the United States over validity of patents to the railway company on lands claimed by the Government to have been included within the Yakima Indian Reservation in Washington was decided by the Court in favor of the Government.

The claim of the Union Pacific Railroad Company that Congress had granted it a right of way 400 feet wide from the middle of the State of Nebraska to Denver, Col., and that it had not lost it by fencing in a narrower width has been upheld.

In the case involving the death of a clerk of the railway mail service, it is held, irrespective of the Hepburn rate law, that a person accepting gratuitous transportation is still under the protection of the State law, against injury or death by negligence.

The Supreme Court has taken a recess until April 7th, without announcing its decision in the State rate cases.

Commerce Court Decisions.—The Commerce Court has handed down a ruling affirming the decision of the Interstate Commerce Commission in the California lemon rate case. By this decision the rate on lemons from California points to Eastern markets is to be reduced from $1.15 to $1 per 100 pounds. This is the second time this case has been taken to Court. The first order of the Commission in the lemon rate case was nullified by the Commerce Court.

The Commerce Court has handed down an order dismissing the motion of the Interstate Commerce Commission to dismiss the petition of the lumber tap lines in the Southwest. The Court held that it has jurisdiction over the decision of the Commission and that it will proceed with the case. It is noted that this action of the Court does not prejudice the case. This noted case has been the cause of more trouble to the Commission than any for a number of years.

The preliminary injunction granted by the Commerce Court against the Interstate Commerce Commission in the so-called pipe line cases, has not been accepted by that body and an appeal through the Department of Justice has been made to the United States Supreme Court. The Government will ask that the case be advanced for hearing. The Standard Oil Company is the chief owner of the pipe lines and its contention, as well as that of the smaller companies involved, is that they are not common carriers in that they only carry their own products, and that Congress exceeded its authority when it attempted to make them common carriers. In brief, the provision of the act making pipe lines common carriers is attack on the grounds that it is unconstitutional in that its effect will be to take private property without compensation. The Commission in granting the injunction, did not discuss the constitutionality of the amendment to the Hepburn law, but said that the question was one which would have to be decided by the Courts. The Commerce Court holds that Congress has not the power to compel a private company to become a common carrier.

Lackawanna Files Answer in Commodity Suit.—The Delaware, Lackawanna and Western Railroad Company and the Delaware, Lackawanna and Western Coal Company, have filed in the United States District Court at Trenton, New Jersey, answers denying the allegations of the Government in its suit instituted a month ago charging violations of the "commodities clause" of the Hepburn law, which makes it illegal for railroad companies to transport over its lines for interstate traffic any coal in which it had an interest.

The Government asked for an injunction restraining the defendants from transporting anthracite coal either mined or purchased by the railroad company and sold by the railroad company to the coal company, in pursuance of an agreement entered into August 2, 1909, in which

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the railroad company, it is alleged, agreed to supply the outputs of its mines to the coal company, which was organized for the purpose of purchasing such coal.

The answers are a general denial of the charges that the agreement between the railroad company and the coal company is in pursuance of any purpose to restrain trade. It is admitted that before the organization of the coal company the railroad company declared a dividend of 50 per cent for the purpose of permitting its stockholders who might wish to do so to invest in the stock of the coal company. It is claimed that the agreement of the railroad company to sell coal to the coal company was made unnecessary by the act of Congress referred to, in order that the railroad company might dispose of the coal produced at its mines, but it denies that the railroad company in any way controls the operation of the coal company.

Traffic.—The railroads were among the heaviest losers from the effects of the disastrous floods which recently swept portions of the States of Ohio and Indiana. Hundredes of miles of roadbed were inundated and destroyed and many bridges and station buildings will have to be entirely reconstructed. A large quantity of rolling stock and freight was also destroyed. What the total loss to the railroads will be is not accurately known at the present time, although estimates place it well up in the millions. Schedules were seriously interfered with and in many instances indefinitely suspended, while the stalling of a large number of trains of live stock and perishable products further complicated the situation. Never in the history of railroading have the carriers sustained a more extended or serious interruption of their service, and it will be several weeks before normal conditions are again reached. Laborers and supplies have been sent to the affected districts and repair work has been started with a rush. At the present writing the railways are exerting every effort in the direction of bringing relief to the thousands who have been left destitute.

The latest reports regarding Parcel Post developments show that the movements for February increased approximately 26 per cent over those of January, and it is reported that 50,000,000 packages were handled through the postal service during that month. Chicago's record was the highest, showing over 5,000,000 packages handled. New York came second with 4,000,000; Boston third with 1,300,000; Cleveland fourth with 1,200 000 and St. Louis fifth with approximately 1,000,000.

Traffic both East and West continued to show satisfactory gains over a year ago and loading reports failed to reflect any important falling off in general business in any particular section. A significant piece of news is contained in the Government's latest report on grain in farmers' hands which shows that on March 1st, there were 2,113,000,000 bushels of the four leading cereals still on hand, compared with only 1,320,000,000 bushels for the corresponding date of last year.

Reports from leading railroad officials are most satisfying as to the outlook, such men as W. C. Brown, president of the New York Central Lines and Howard Elliott, president of the Northern Pacific, having recently expressed the opinion that indications point to a prosperous year. Notwithstanding the fact that the railroads are handling a heavy tonnage, the car service situation remains satisfactory, the net surplus on March 15th, being 38,000 cars as compared with 3,000 cars on March 13th, 1912. The open winter has played an important part in this favorable condition, as the railroads are unquestionably moving a greater tonnage now than they were during the corresponding period of last year. The one class of freight which shows a sharp decline is that of anthracite tonnage, which, for February was some 200,000 tons less than for February of 1912. This is, however, the direct result of the unusually mild weather which has been characteristic of the present winter in many localities.

Imports and exports continue to show remarkable results and a new high record in the history of American foreign commerce was established for February, the aggregate of imports and exports amounting to nearly $344,000,000, with a balance of trade in favor of the United States of approximately $44,500.000.

DIVIDEND NOTICES.

Office of the United Gas Improvement Company,
N. W. Corner Broad and Arch Sts.
Philadelphia, March 12, 1913.

The Directors have this day declared a quarterly dividend of two per cent. ($1.00 per share), payable April 15, 1913, to stockholders of record at the close of business March 31, 1913. Checks will be mailed.

LEWIS LILLIE, Treasurer.

American Car and Foundry Company.
New York, March 3, 1913.
PREFERRED CAPITAL STOCK.
Dividend No. 56.

A dividend of one and three-quarters per cent. (1¾%) on the Preferred Stock of this Company has this day been declared, payable Tuesday, April 1, 1913, to stockholders of record at the close of business Tuesday, March 11, 1913.

Checks will be mailed by the Guaranty Trust Company of New York.

S. S. DE LANO, Treasurer.
WM. M. HAGER, Secretary.

American Car and Foundry Company.
New York, March 3, 1913.
COMMON CAPITAL STOCK.
Dividend No. 42.

A dividend of one-half per cent. (½%) on the Common Stock of this Company has this day been declared, payable Tuesday, April 1, 1913, to stockholders of record at the close of business Tuesday, March 11, 1913.

Checks will be mailed by the Guaranty Trust Company of New York.

S. S. DE LANO, Treasurer.
WM. M. HAGER, Secretary.

ANNUAL MEETING NOTICE.

Southern Pacific Company.
NOTICE OF MEETING.
165 Broadway, New York, N. Y.

The Annual Meeting of the Stockholders of the Southern Pacific Company will be held at the office of the Company in Beechmont, Jefferson County, Kentucky, on Wednesday, April ninth, 1913, at twelve o'clock noon, standard time, for the election of Directors and the transaction of all such other business as may legally come before the meeting, including the approval and ratification of all action of the Board of Directors and of the Executive Committee since the last annual meeting of the Stockholders of the Company.

For the purposes of the meeting the books for the transfer of stock will be closed at three o'clock P. M., on Monday, March 10th, 1913, and will be reopened at ten o'clock A. M., April 10th, 1913.

By order of the Board of Directors.

HUGH NEILL, Secretary.

Dated January 31st, 1913.

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Lv. North Philadelphia	4.31 P. M.	Ar. North Philadelphia	7.54 A. M.
Lv. Washington	3.10 P. M.	Ar. New York	
Lv. Baltimore	4.20 P. M.	Hudson Terminal	9.36 A. M.
Ar. Chicago	9.45 A. M.	Pennsylvania Station	9.40 A. M.

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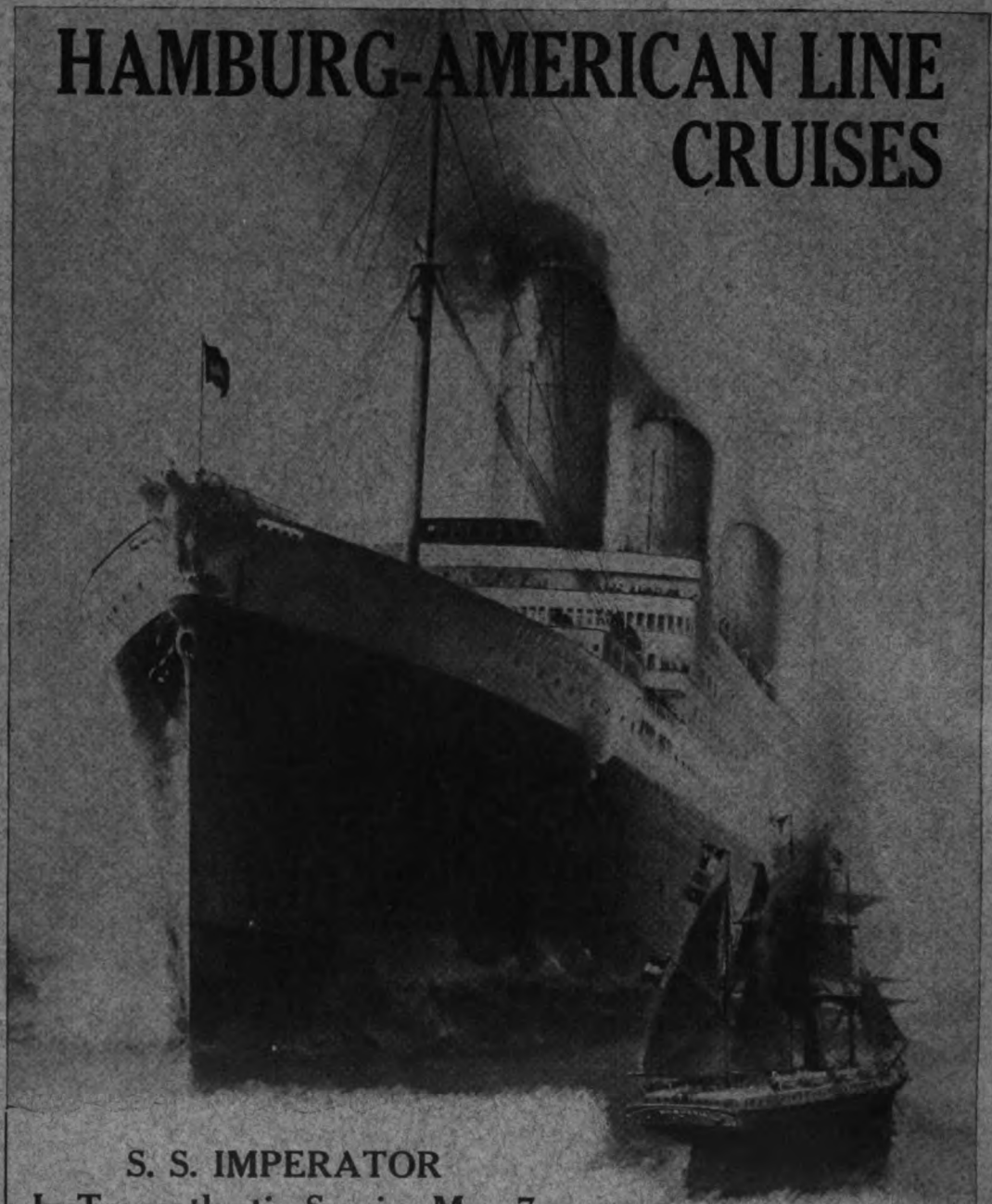

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Business and the Administration
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By Slason Thompson.
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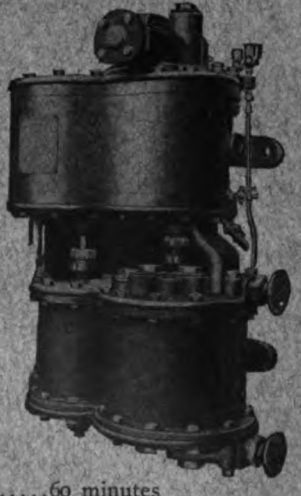

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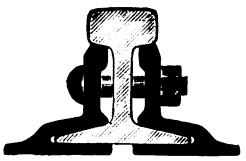

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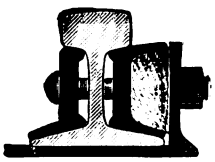

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Railway World

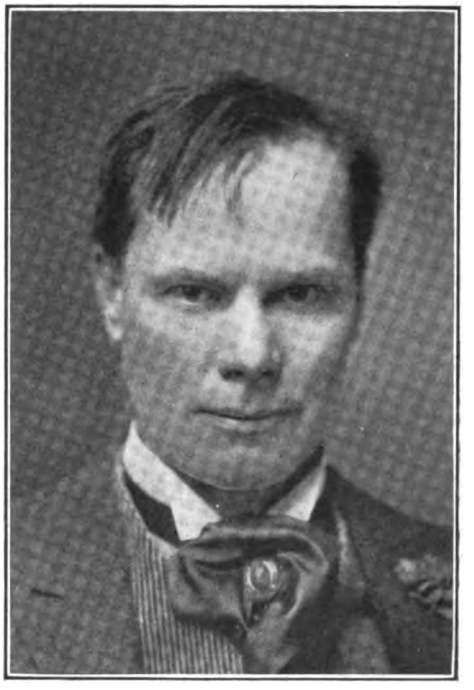
VOL. LVII. MAY, 1913 No. 5

Important Developments in the Transportation Field

THE "FULL CREW" LAWS OF NEW YORK AND NEW JERSEY

On December 11, 1912, the *Wall Street Journal* published extracts from a letter sent out from the headquarters of the Brotherhood of Railroad Trainmen. In this letter Mr. John Fitzgibbons, so-called "legislative representative" of the trainmen, informed the members of his organization that Congressman William Sulzer had given him the following promise: "If I am elected I will sign the Full Crew Bill and I will aid you in securing its passage." This letter was written two days before election. Its authorship has not been denied by the writer, although the Governor of New York has repudiated it. There seems to be no doubt that a pledge of this character was made by somebody representing himself as having authority to bind the candidate and that it was made with a view to influencing railway men's votes for the Democratic candidate.

The Full Crew law passed by the New York Legislature and which the Governor has signed, provides that a freight train of more than 25 cars, running outside of yard limits, and on railroads more than 50 miles in length, must be manned with a crew of not less than one engineer, one fireman, one conductor and three brakemen; any train of five cars or more, other than a freight train, must have one engineer, one fireman, one conductor and two brakemen; and, if it is a passenger or baggage train, it must have a baggage man in addition to the crew. Any freight train of 25 cars or less must have one engineer, one fireman, one conductor and two brakemen; and any light engine must have not less than one engineer, one fireman and one conductor or brakeman. A similar law has been passed by the New Jersey Legislature and signed by Governor Fielder on April 1st.



GOVERNOR WILLIAM SULZER, OF NEW YORK.

GOVERNOR JAMES C. FIELDER, OF NEW JERSEY.

These laws represent the extreme type of interfering legislation. The states of New York and of New Jersey have established Public Service Commissions charged with the duty of supervising the capitalization, the rates, and the service of all public utility corporations within their borders. If the railroads are so unmindful of their own in-

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terests as to attempt to operate their trains with a number of trainmen insufficient to operate them safely, it is the duty of the Commission, either acting on its own initiative, or on the petition of some interested party, to require them to improve their service. The legislature and the governor are entirely unqualified to pass on matters of railway operation. That they have done so is merely an evidence of an abject surrender on the part of men whose judgment does not approve, we are confident, the course they have taken, to the political power of the railway brotherhood.

This bill was passed and signed in spite of vigorous and general protest on the part of railroad officials, and in spite of an offer made by the executive of every large railroad in the state of New York coming under its provisions, to refer the question to the Public Service Commission, and an agreement to abide by the Commission's decision. The railway presidents further promised the Governor, in case he would veto the bill, that if the public service commissions under the present law did not have authority to issue orders specifying the number of employes on trains, that they would co-operate in passing an act for that purpose. It was pointed out to the Governor, as it was also explained to the Governor of New Jersey, that the proposed law meant a large increase in the operating expenses of the railroads, that the general introduction of air brakes on freight trains had reduced instead of increased the work of brakeman, that an addition to the number of trainmen would tend to make men careless, and that in the long run, the public would pay the increased cost, either in higher rates and fares or in decreased service.

The strongest statement in condemnation of the Full Crew law was made by Mr. Joseph Wood, First Vice-President of the Pennsylvania lines. This was based on experience in states having full crew laws, and was to the effect that additional brakemen were not needed "either to promote safety or to facilitate operations, and that employment of men on trains when not needed for service, is a menace to safety of operation."

Governor Sulzer deemed it necessary to issue a public statement justifying his act in signing the bill. The only argument which he advanced in its favor was that the measure was designed to increase the safety of railroad operation. The railroads repeatedly challenged the advocates of the full crew law to present evidence in support of this position without calling forth any response. The explanation is nothing more than a flimsy excuse, unworthy the position of the man who offered it.

The Legislature of Oklahoma recently passed a Full Crew Bill which Governor Cruce vetoed. The following extract from his veto message is applicable with equal force to the situation in New Jersey and New York: "The practical effect of this bill," he said, "would be to give employment to a number of railroad men without increasing the efficiency of the service, and would be supplying positions for three men to do the work which can be done by two. It is in entire harmony with the principle that has prevailed in this state of creating an army of officials to do the work that ought to be done by half that number of men. This Legislature has set itself to the task of reducing the number of officials drawing salaries from the state, and a Herculean task it is proving. It is certainly inconsistent while trying to curtail the number of useless public officials, to increase the number of appointed employes, who, in the end, must draw their subsistence from the same source that is now drawn upon by these useless public employes."

A serious situation is presented by the enactment of this legislation. President Rea, of the Pennsylvania Railroad Company, at the hearing before Governor Fielder on the New Jersey bill, asserted that the full crew law, now operative in Pennsylvania, costs his company $577,000 a year. He estimated that the cost to New Jersey would be $253,000 annually. The New York law, it is estimated, will cost the New York railroads over $2,000,000 a year. The railroads must make up this deficiency from some source.

NECESSITY FOR INCREASED RATES

The only adequate measure of relief for this and other conditions, rests in the carriers' ability to procure a prompt readjustment of freight rates. Recognizing this fact, Eastern railway presidents held a conference in New York on April 28th, at which a committee consisting of Presidents Willard, Rea and Brown was selected to take up this question, and as soon as possible make application to the Interstate Commerce Commission for a reopening of what was known in 1910 as the Eastern Advance Rate Case, which was heard and passed upon by the Commission in that year. President Wil-

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lard, in reviewing the situation, has made the following public statement:

"When the matter of an increase in rates of freight was considered three years ago, it was proposed by the railroads to increase generally the so-called class rates and some of the commodity rates. It was urged at the time by those opposed to the suggested advances that a fairer and better way to obtain an increase if necessary would be by a small advance on all rates instead of the larger advance as was proposed, of some of the rates, and it has been very clearly brought out during recent years, and particularly in the numerous complaints filed with the Interstate Commerce Commission, that the relation of rates between localities is of much greater importance to the shipping public than the actual rate *per se*. With this in mind the carriers now hope to obtain the consent of the Commission for an advance of five per cent on freight of all character, and it is believed that such an advance if granted will create little, if any, disturbance in commercial conditions.

"The railway executives feel that the changed conditions which have come about have so narrowed the margin between income and outgo that a ten per cent increase of all freight tariffs would be justified. They recognize, however, the importance of obtaining the necessary revenue in such a way as to cause the least possible disturbance of commercial conditions and on that account feel that it would be better to ask for an increase of five per cent only at this time.

"It has been urged in certain quarters that some of the commodity rates now in existence are relatively too low and that they ought to be raised before any general advance is made, and to this view the railroad executives freeely assent, but they also say that while they would be glad to see a better adjustment of these rates, it can only be brought about by the co-operation of the shippers with the railroads and with the assistance of the Commission.

"Since the previous hearing the railroads generally have expended large sums for equipment and additional facilities and while there has been some response in the way of increased gross revenues, the surplus income after paying charges and dividends, has been so narrowed as to not encourage the further expenditures required to keep the railroads abreast with the growing demand of the business of the country.

"The bearing of this situation on the question of rates was aptly referred to by Commissioner Prouty in his opinion on the previous hearing:

> "'Our railroads should be kept in a high state of efficiency, and railroad charges should be sufficient to permit this. Necessary extensions and improvements should be made, and the treatment of our railroads by the public should be such as will inspire that confidence in the investing public necessary to obtain the funds for such additions.'

"Unless the carriers are enabled to increase their revenue in some manner, and the plan above proposed seems likely to meet with less opposition than any other, their ability—already limited—to provide such additional equipment and facilities as will be necessary to take care of the growing demands of the country will be very seriously impaired."

CLOSE OF THE FIREMEN'S WAGE CONTROVERSY

On Friday, April 11th, the final briefs were submitted to the Arbitration Committee appointed under the Erdman Act which had been hearing the case of the firemen for higher wages. The main argument of the firemen was the desirability of uniformity in wages and conditions on the fifty-two roads which were parties to the proceedings. Uniformity in rates, rules and conditions of service prevail in the mining industry, the printing trade and the building trades. In the textile, steel and railroad industry, lack of uniformity is the rule. The firemen argued from the comparative stability of relations between labor and capital in the three industries first mentioned, as compared with the unsettled conditions, particularly evidenced in the railway industry, that uniformity of labor conditions should prevail. The firemen went even further in their demand for uniformity in rates and rules. Their brief contended that this should not be influenced by the relative wealth of railroads "because in no other trade or industry does the wealth of the employer fix the wage of the employe. The difference in the bank accounts of an employing printer or builder in no way influences the wage of the journeyman printer, the carpenter or bricklayer. The less prosperous railroads profit as greatly by the labors of the locomotive firemen as do the wealthiest railroad corporations. The productive efficiency of the locomotive firemen is as great on one railroad as another, where the same class and weight of locomotive is used, and the financial returns to a less prosperous railroad from the firemen's labor on the same class of locomotive, is sometimes greater than to the more prosperous railroads because of higher local freight rates." The firemen, also, argued for higher wages on the ground that the cost of living has advanced, and that working conditions for the firemen in the railway industry are far more severe than before the introduction of the heavy trains and large locomotives of today.

Looked at merely as a piece of logical argument, the brief of the railroads submitted by Elisha Lee, chairman of the Committee of Managers, is far superior to the brief of the firemen. In their original demands

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asking for standardization of wages and working conditions in the Eastern district, the firemen asked that "rates of wages that are higher and conditions of employment that are better than those asked for in the present movement shall remain in effect." Mr. Lee pointed out that in making this demand the firemen have furnished a conclusive answer to their arguments for standardization of wages and conditions of employment. If their demands were granted, while these exceptions are retained, a new basis would be laid for fresh demands in the future, based on the same argument of inequality of wages and working conditions. On the main point of standardization the railroads claimed that this is wrong in principle and unjust in practice. Standardization fails to recognize dissimilar physical characteristics on different parts of the same road; variations in traffic conditions on different roads, or parts of the same road; general differences in wages in different localities within the district, and finally, standardization altogether disregards the ability of the company to pay. Upon this last point the effective argument is based, that the more prosperous roads are those of heaviest traffic, and generally speaking, those which make the heaviest demands upon the firemen.

The brief devoted much attention to the demand of the firemen that two men be placed on certain locomotives. In answer to the demand of the firemen that the three-man standard should be fixed for those engines in through freight service weighing 200,000 pounds or more on the drivers, Mr. Lee showed that the weight on the drivers does not itself determine the amount of work demanded of the fireman, and he further pointed out that recent improvements are reducing the amount of fuel handled by the firemen to a considerable extent.

In conclusion, the brief stated that "to grant the firemen their demand for annual increases in pay of 35.5 per cent would have a strong and well nigh irresistible influence towards bringing about large collateral increases in other classes of railway employes. * * * * Early in the year 1910 the conductors and trainmen made certain demands for increased wages, which were finally disposed of by granting adjustments covering a large part of the territory, either through mediation, arbitration, mutual un-

THE ARBITRATORS WHO SETTLED THE EASTERN FIREMEN'S WAGE CONTROVERSY.

W. W. Atterbury, at the left, is a vice president of the Pennsylvania Railroad. Albert Phillips, at the right, is vice-president of the Firemen's Union. Judge William L. Chambers, in the center, was chosen under the Erdman Act as the third member of the Commission. He has been a member of a number of international courts of arbitration, and was the third arbiter several years ago in the dispute between the western roads and their firemen.

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derstanding, or a general advance. Later, the firemen received like adjustments, and still later the engineers' wages were also adjusted. In the early summer of 1912 the engineers again made further demands which were finally arbitrated when they were granted certain increases throughout the territory. Now the firemen are here again, and the conductors and trainmen have already made further demands and are now urging the railroads for prompt action. How long such demands, which up to the present time always have resulted in additional burdens on the finances of the railroads, can continue without impairing the credit of the railroads, depends very largely on the decision in the case of the firemen."

As anticipated, the award, which was made on April 23d, was in the nature of a compromise and grants an estimated wage increase to the firemen based on a standard classification of locomotives of from 6 to 9 per cent over their present wage scales. This, it is understood, will mean an additional burden of between $2,000,000 and $3,000,000 to the annual pay rolls of this element of transportation labor. The new rates went into effect May 3, or ten days from the date on which the award was made, and remain in effect one year. Certain other concessions were made as to working conditions, but the arbitrators refused to make their award retroactive as of date July 1, 1912, which the firemen demanded, and also refused to uphold the firemen's contention with regard to the necessity for two firemen on all locomotives over a certain weight. The Board holds that "when a second fireman is deemed necessary on any engine, or assistance is deemed necessary on any engine where one fireman is employed, the matter will be taken up with the proper officials by the firemen's committee. Failing to reach a settlement, the matter shall be referred to an adjustment committee, to be composed of five persons, two of whom are to be chosen by the railroad company, two by the firemen's committee and one to be selected by the four thus chosen, which shall be chairman of the committee." Speaking generally, the award emphasizes the extreme difficulty of controlling the constantly increasing cost of labor. The possible effect of such a finding upon other demands now pending, is one of its chief points of interest to railway officials. The full text of the awards of the Arbitration Board will be found in another section of this issue.

THE OMINOUS ATTITUDE OF RAILWAY LABOR

On April 22d the representatives of the trainmen and conductors on the fifty-two railroads in the Eastern district held their first meeting with the Conference Committee of General Managers of the same railroads, in an attempt to solve the demands made recently by these organizations for higher wages and changes in working rules. On May first the trainmen were informed that their demands could not be granted. The general movement for higher wages, to which reference has just been made, is already in progress. Next, in order, will be the switchmen who, already, in the Chicago district, have threatened a strike. After these difficulties have been adjusted, if they can be adjusted, it will be time for the engineers to repeat their demands, and so the round of demand, negotiation, disagreement, arbitration and concession will begin again, with no limit in sight save either the arrested development of the railroads, with bankruptcy of the weaker companies, or a widespread railroad strike which may be necessary to bring home to the people the intolerable situation in which the railroads find themselves. The position of the railroads towards the demands of trainmen and switchmen is considerably stronger than in their negotiations with firemen and engineers. Trainmen and switchmen are not skilled mechanics; they are not considered as indis-

G. W. W. HANGER.

Acting Labor Commission who recently went to Chicago in an effort to settle the controversy which has arisen between the western roads and their switchmen.

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pensable as are engineers and firemen; their places can be more easily filled in the case of a strike; they are in no sense labor monopolists. The railroads are in a far better position to vigorously resist the demands than in the two previous negotiations. It is impossible for them to assert, moreover, that the difficulties attending their employments have been seriously increased, and it is undisputed that their wages have been greatly advanced in recent years.

GROWING DISSATISFACTION WITH ERDMAN ACT

The railway managers are firm in their determination to bring this intolerable situation to an end. As the Railway Business Association says in a recent bulletin, "The Erdman Act has all but broken down. The number of arbitrators provided, three, is entirely inadequate to handle a big wage question; the time allowed, thirty days, is too short for a thorough investigation; and the available wage statistics are unsatisfactory." The act should be extended, the bulletin continues, to apply to all classes of railway labor instead of to train service employes only. At present it is satisfactory to neither party and the Association urges that it should be amended forthwith, or legislation substituted for it providing a form of voluntary arbitration so little open to valid objection as to deprive disputants of all reasonable excuse for declining arbitration under the law. To postpone remedial legislation is to invite widespread and perhaps national disaster at any moment. It is believed that both sides can unite in supporting legislation which shall provide the machinery for complete investigation by competent experts who shall possess, because of their positions, the confidence of all concerned of the facts in any controversy of this character, so deeply affecting the public interests. Upon the basis of this finding of facts, which should be made public before action is taken, it should not be difficult for the contending parties to reach some basis of agreement, either by direct negotiation or by referring their differences to some arbitration board.

HONORABLE SETH LOW.

President of the National Civic Federation which has recently organized a committee to propose amendments to the Erdman Act.

The great difficulty in recent arbitration has been the absence of reliable data upon which both parties could agree. The figures compiled by the Interstate Commerce Commission are generally regarded as unsatisfactory, mainly because they are susceptible to a variety of interpretations. It is conceded by railway officials and railway labor leaders that the basis for any permanent solution of the railway labor question must be the establishment of an impartial public agency which shall ascertain the facts bearing upon the various controversies which are continually arising. Such facts as wages paid in different classes of the railway service and on different railroads, and for different work, changes in working conditions, and ability of the railroads to pay,—facts which are not now available, and which must be compiled as the result of continual investigation by a permanent organization. Without these facts, public opinion which must be relied on as the ultimate arbiter in controversies of this character, cannot act intelligently, and if these facts are disclosed, it is a safe prediction that neither the railroads nor their employes can maintain positions which reliable and generally accepted information shows to be unreasonable and, therefore, untenable.

The department on Industrial Mediation law of the National Civic Federation has organized a committee to propose amendments to the Erdman Act and a bill for that purpose will soon be ready for presentation to Congress. The Erdman Act has no friends; it is, in subsance, the reference of all controversies to one man who acts as an umpire between representatives of the two contending factions. His award must necessarily be a compromise and, therefore, satisfactory to neither side. Even defective machinery, however, will work if given satisfactory material. No matter what the

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form of arbitration machinery established by the law will finally be, if only the exact facts can be placed before the arbitrators, it is a safe conclusion that justice will be done.

THE EFFECT OF THE PARCEL POST UPON EXPRESS REVENUES

It is useless for a private enterprise which must be operated for profit and with reference to the cost of production, to compete with a government department which can draw upon the limitless reserves of taxation to replace its losses. The inauguration of the parcel post has cost the express companies about six million a year. According to statements submitted to the Interstate Commerce Commission by counsel for the companies in their final arguments against the reduction in express rates proposed by the Commission, it was declared that the companies have suffered a loss of approximately 25 per cent in their small package business. The express companies cannot reduce their plants or adjust their business to meet the government delivery prices, particularly with the parcel post applying to the rural districts. They are helpless in the face of government competition. To add to their difficulties, it is altogether probable that the scope of the parcel post will be quickly extended to take in packages of more than eleven pounds in weight, and it is certain that many improvements will soon be introduced into the service which will greatly increase its popularity. It is proposed by the

B. D. CALDWELL.
President, Wells Fargo Express Company.

W. M. BARRETT.
President, Adams Express Company.

Postoffice Department to speedily establish a C. O. D. service by which upon the payment of ten cents in addition to the regular charge, the postoffice will collect for your package and remit for the amount up to $100, charging the additional money order fee for the remittance. A special delivery service will also be instituted in this department, and the style of stamp is to be changed. The business is growing at an extraordinary rate in spite of the drawbacks which these reforms are intended to remedy. During March the parcel post business showed a gain of 12,000,000 packages over February. At the present rate of increase it is believed that 750,000,000 packages will be handled by the parcel post during the first year of its operations, and the revenues of the Postoffice Department is estimated at $50,000,000, of which between a quarter and one third is estimated at profit. With the profits realized from the small package business further extensions of the service can be made into less profitable fields.

It is this situation with which the express companies are faced while they are endeavoring to combat the arguments of the advocates of lower express rates which, it is feared, the Interstate Commerce Commission plans to put into effect. Counsel for the companies estimates that the Commission's plan for an adjustment of express rates according to zone, will cause five leading companies a loss of between $20,000,000 and $25,000,000 a year, added to the loss which the parcel post is already imposing

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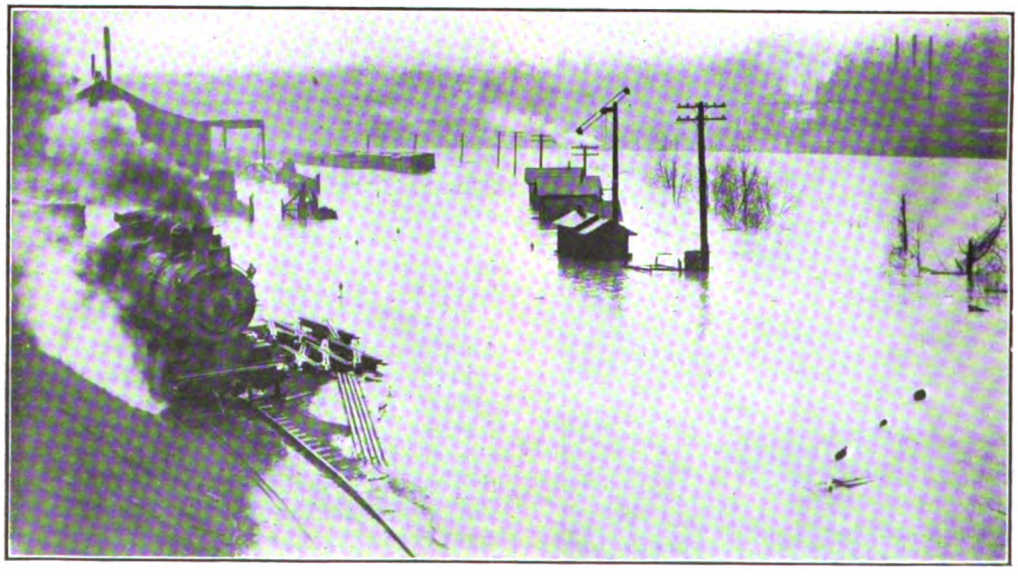
upon them. There is peculiar injustice in the reduction of express rates at this time when the government has instituted the most effective form of competition with the express companies and is making such rapid inroads upon their profits. It is to be hoped, in the interest of fair play and in the proper regard to the security of investment, that the Interstate Commerce Commission will defer final action upon their plan for reducing freight rates until the effect of government competition upon express revenues shall become fully apparent.

RAILROAD LOSS FROM FLOOD DAMAGE

It is impossible, at this time, to accurately determine the extent of damage to railroad property caused by the Western floods. In the state of Ohio the damage is placed by some authorities at $10,000,000. The total amount of damage sustained by the Baltimore and Ohio is estimated at between $2,500,000 and $3,000,000 in Ohio and West Virginia. A total estimate of $20,000,000 in the three states mainly affected by the floods, is probably not an exaggeration of the cost to the railroads of repairing the damage done their property. The lessons of the flood from the standpoint of railway interest are plain. Much has been heard in recent years of what constitutes a proper rate of return on railway investments. The Interstate Commerce Commission is apparently dominated by the conviction that the railroads ought not to make more than six or seven per cent on the amount invested in their properties, and that their present earnings are well above the standard. This enormous flood damage to which railway property in other parts of the country, notably in the lower Mississippi Valley is also liable, illustrates the necessity of revising these opinions of an "adequate" rate of return and of the "reasonableness" of freight and passenger rates out of which these returns must come. Railway rates and railway revenues must be large enough, not merely to furnish a fair return to the investor in dividends and interest, but also to enable the railroads to build up large surpluses and reserves out of which they may replace damage resulting from extraordinary disasters, such as the middle western floods, for which ordinary appropriations for maintenance and depreciation are entirely insufficient. The cost of repairing this damage will make heavy inroads upon the surplus revenues of the companies affected. In some cases it will result in deficits, and in every case, in the postponement of necessary improvement and new construction for the betterment of the service. In the long run the public will be the loser, along with the investor.

As President Willard remarked in discussing the damage sustained by the property of the Baltimore and Ohio, that his



THE FLOOD AT YOUNGSTOWN, OHIO. FREIGHT YARDS OF THE PENNSYLVANIA RAILROAD COMPLETELY SUBMERGED.

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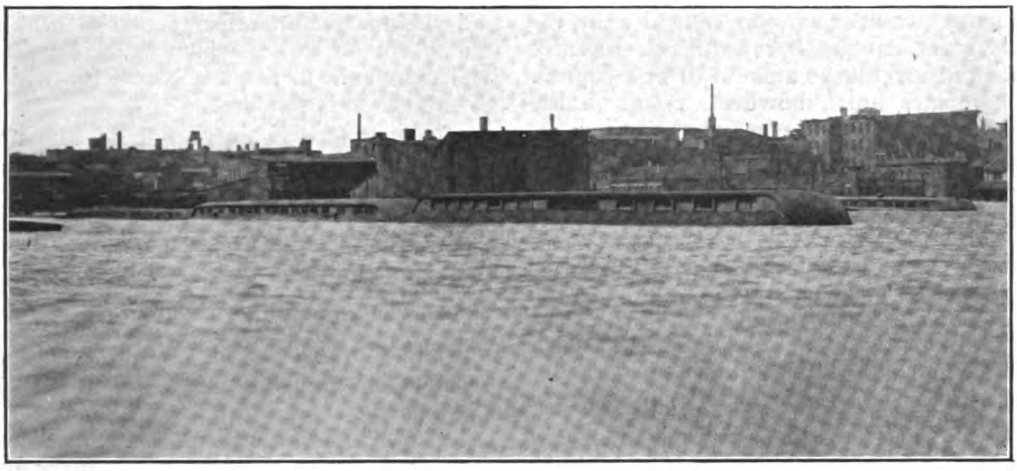
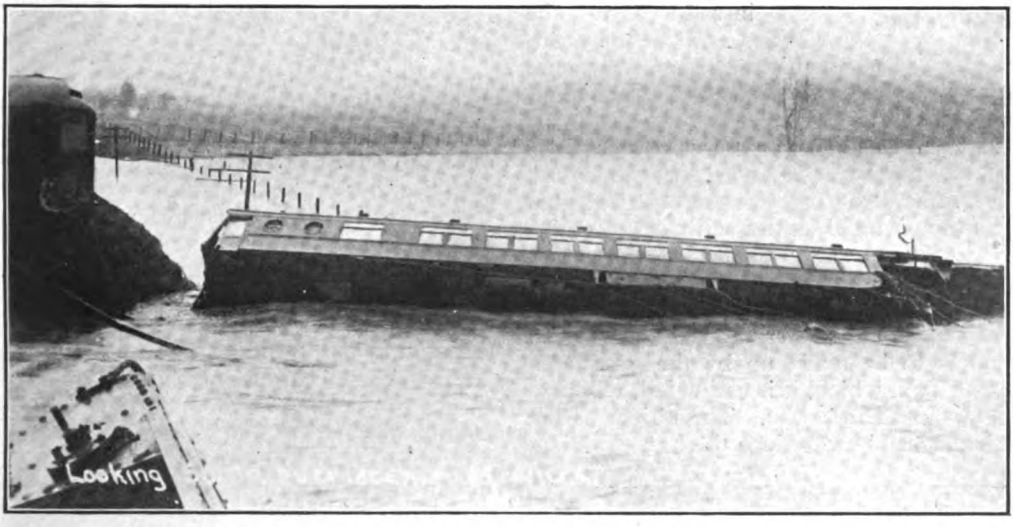


FLOODED RAILWAY YARDS AT CINCINNATI, OHIO.



WRECKED PULLMAN, WEST LIBERTY, OHIO, CAUSED BY FLOOD.

AFTER FLOOD HAD RECEDED AT EAST AKRON, OHIO. WRECK OF BALTIMORE AND OHIO FREIGHT CARS.

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company would have no difficulty in repairing the damage because it had recently arranged for a large amount of new capital. The repairs must, however, result in the postponement of a large number of additions and betterments in the territory affected. It is not in the interest of the public that the progress of railway improvement should be halted or that large corporations should be hampered by lack of means in their performance of an indispensable public service. The lessons of the floods is, therefore, plain, that railway rates are reasonable only when they yield sufficient revenues to provide for these "extraordinary replacements" and repairs.

BUSINESS AND THE ADMINISTRATION

Political interest now centres in the tariff bill. As introduced by the Ways and Means Committee this measure makes sweeping reductions in a great number of articles. The theory of a tariff for revenue has been apparently rejected along with the theory of a tariff for protection. The Democratic party has merely attempted to cut down tariff duties without much regard to the revenue possibilities of the new schedules. The estimates of the revenues and expenditures under the new measure show a deficit of nearly $69,000,000. This deficit is to be made up by the graduated Income Tax, which, it is estimated, will produce about $70,000,000. The object of the bill is ostensibly to reduce the cost of living,

CONGRESSMAN OSCAR UNDERWOOD.
Author of the tariff bill which has aroused manufacturing interests throughout the country.

and also to "eliminate protection of profits, and to cut off duties which enabled industrial managers to exact a bonus for which no equivalent is rendered.

"To introduce in every line of industry a competitive tariff basis providing for a substantial amount of importation, to the end that no concern shall be able to feel that it has a monopoly of the home market gained other than through the fact that it is able to furnish better goods at lower prices than others."

Manufacturing interests are deeply aroused by what they consider a direct attack. They have accepted the doctrine that tariff reductions should not reach the point of disturbing domestic industry. Wherever duties were higher than the amount of difference between the foreign and domestic labor costs, there is now a general agreement, even among those directly concerned, that such duties are indefensible, and should be reduced. The Democratic bill, however, has gone far beyond this, reducing duties in many lines to the point where manufacturers would either have to cut wages or abandon the production of the finer grades of the product in which the labor cost is high.

The attitude of the manufacturers is well expressed by Mr. Louis W. Parker, a Southern cotton manufacturer, who voiced the following opinion in an interview: "With present cost of production manufacturers of combed yarn and of the higher counts, and of the fabrics made from them will not be able to meet foreign competition under the rates proposed by the Ways and Means Committee. They will either be forced to reduce their production costs by lowering the wage scale, or go into the manufacture of coarser goods, or go out of business. Inevitably many of them will turn to the coarser goods; this will bring over competition in this division of the industry, and so the whole industry, in every direction, will feel the disastrous effect of the new tariff."

This opinion is widely echoed by representatives of every industry. There is genuine alarm over the prospect that the passage of the tariff bill will introduce a vast deal of disturbance into industries with consequences to business which it is impossible to forecast.

In tariff revision, as in the settlement of railway labor disputes already referred to, the most evident need is for the establishment of an impartial, permanent tribunal which shall ascertain the exact facts upon

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which revision can be based. It is impossible to deny that the methods of general tariff revision, as exemplified in the last four tariff bills, has proven very unsatisfactory, or that the practically unanimous desire of business men affected is to have this method changed in such a way as to take tariff revision out of politics.

The Income Tax measure has aroused an almost equal amount of criticism. The objection is not to the principle of the income tax, but to the basis on which it is imposed and the method of collection. All incomes in excess of $4,000 a year, however derived, whether from profits, investments, business, salaries or wages, are to be taxed and the rate of the tax is to increase with the increase of income, a levy of 4 per cent being imposed on sums above $100,000. This increase in the rate of taxation is extremely obnoxious. It is a direct incitement to confiscation and it penalizes the accumulation of wealth, accumulation which, since it is always invested in productive industry or in real estate, already pays large taxes to local and state governments.

Serious exception is also taken to the method of "stoppage at the source" which is applied in a very broad way in the law. To prevent the possibility of evasion the tax is to be levied at the source of income. The employer is to pay the tax for his employe. Financial corporations and bankers must deduct the tax in the payment of interest on bonds, mortgages and other indebtedness, even though in any particular case, the interest or dividend does not amount to $4,000. In case the recipient of such income is entitled to exemption, he can secure it by filing with the person or corporation who is required to withhold and pay the tax for him "a true and correct return of his annual gains, profits and income from all other sources, and also the deductions asked for; and the showing thus made shall then become a part of the return to be made in his behalf by the person required to withhold and pay the tax, or such person may likewise make application for deductions to the collector of the district in which return is made or to be made for him."

It has always been the principal objection to the income tax that it puts a premium on false declaration. To prevent such false declaration this extraordinary devise of "stoppage at the source" has been devised. The obligation to pay the tax will not rest upon the tax payer but upon him who handles and pays over the income. It is a question, however, if this will serve to prevent evasion, and it is certain to cause an extraordinary amount of friction and resulting hard feeling.

The Administration's policy on the trusts and the money question has not yet been formulated in bills. It is known, however, that a continuation of the anti-trust campaign by the Department of Justice is in contemplation, and that a comprehensive scheme of monetary reform involving the creation of a number of district reserve banks under the general supervision of the central government is in contemplation. The attitude of the Administration towards the trusts was clearly set forth in an address by Secretary Redfield before the American Cotton Manufacturers' Association in which he raised a serious doubt as to whether trusts were really necessary for industrial efficiency, and President Wilson in the current number of *World's Work*, writing on the "New Freedom," says: "We design that the limitations on present enterprise shall be removed so that the next generations, as they come along, will not have to become proteges of benevolent trusts, but will be free to go about making their own lives what they will."

The plan for a revision of the banking law is directly aimed at the financial supremacy of New York. It is planned to scatter the reserves which now centre in the banks of New York City, dividing them among fifteen reserve banks located in different sections of the country. By this distribution, it is expected that the control which New York has hitherto exercised over the finances of the nation will be greatly weakened, and the alleged evils which have arisen out of that domination will be remedied.

This is an ambitious program which President Wilson has set before his party. In all probability, the tariff bill will go through substantially as it was introduced into the House. The President is determined upon its passage, and with the great amount of patronage which is still at his disposal, he will be able to make his wishes effective in Congressional action. The Income Tax bill is also reasonably certain to pass, although some of its more obnoxious features, to which attention has already been called, are likely to be eliminated. There is no reason to anticipate any let up in the prosecution of the industrial combinations, although the Department of Justice will for some time have its hands full in completing the work begun by Mr. Wickersham. The program

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of financial reform is yet too nebulous to be the subject of decided comment.

This program of economic reform is very drastic. Much time must elapse before the American people can readjust themselves to these new conditions. The period of readjustment is likely not merely to be prolonged, but to be attended with a certain amount of business stagnation. Whether this result will be sufficient to overthrow the Democratic party, and whether, in case history repeats itself, these very positive legislative actions can be reversed, are matters which the near future may be expected to reveal.

CONGRESSMAN T. W. SIMS,
Author of bill to repeal provision in Panama Canal Act for toll exemption of coastwise shipping.

THE ADMINISTRATION'S ATTITUDE TOWARDS PANAMA TOLLS

President Wilson's attitude on the Panama Canal toll question has not yet been announced. It is believed, however, from all the evidence available that he regards it improper for the United States to exempt its vessels in the coastwise traffic from paying tolls on the ground that the proposed exemption is in effect a subsidy. Some anxiety is felt in shipping circles over the reported intention of the Administration to build ships for the through canal traffic in order that there may be a means for holding rates down to a reasonable level. There is also anxiety over the announced intention of the Hamburg-American Company to finance a $15,000,000 steamship corporation for the exploitation of the canal traffic. The monopoly of the coastwise traffic which is supposed to be secured by present law, could be easily evaded by this method, since the vessels could be constructed in American shipyards.

Congressman Sims, of Tennessee, is the author of a bill for the repeal of that provision in the Panama Act providing for the exemption of coastwise shipping engaged in the coastwise trade. He estimates that there will be a majority of at least 50 in the House of Representatives for the repeal of this law. This will involve the repudiation of the plank in the Democratic platform providing for free tolls for American ships. This plank was put in the platform by the influence of Senator O'Gorman and it is feared that the Senate may be the stumbling block to the repeal.

THE HARRIMAN DISSOLUTION PUZZLE.

The Union Pacific dissolution is advanced closer to a solution by the action of the Circuit Court judges in making certain suggestions to counsel for the Union Pacific and also to District Attorney Houpt, of St. Paul. These suggestions relate exclusively to the disposition of the Southern Pacific stock. The court holds that the stock should not be sold to Union Pacific stockholders up to the point where these stockholders shall be in practical control of a competing company. The court finds that 1,440 Union Pacific stockholders also own $92,162,400 of Southern Pacific stock, exclusive of the $126,650,000 of stock involved in the suit. "In view of

JOHN M. ESHLEMAN,
Chairman, Railroad Commission of California.

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these facts," said the court, "it seems the disposition of as much as $40,000,000 of Southern Pacific with voting power to the stock of the Union Pacific Company might give practical control of that company to Union Pacific stockholders, and the question of what amount, if any, of the Southern Pacific may be safely transferred to them is suggested as an argument for consideration."

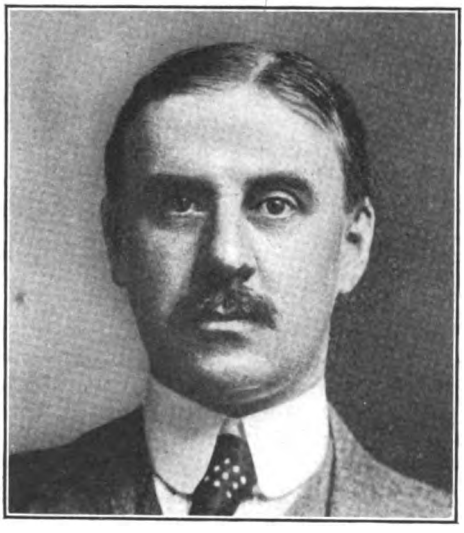
This suggestion, in effect, a declaration by the court, which has also granted a sixty-day extension to the company, to devise a plan of dissolution which shall meet the requirements, points the way to a solution of a difficult problem. It has been proposed that the Union Pacific offer the Southern Pacific stock to the stockholders of the two companies excluding, however, a certain limited group of Union Pacific stockholders from the privilege, and with the guarantee of an underwriting syndicate to insure the success of the transaction. This plan, it would seem, meets the government's objections.

We note with surprise, however, that the Circuit Court has accepted the view of Mr. Brandeis and his fellow critics of the Oil and Tobacco dissolution plans, that a combination in restraint of trade can be effected by individual ownership of a controlling interest in two competing companies even though that ownership is divided among thousands of stockholders and is not concentrated in a corporation or voting trust. The court evidently believes that these 1,440 Union Pacific stockholders will find some method at present unknown to the law by which they can acquire sufficient facility in thinking and acting along identical lines in their choice of direction to continue the illegal combination. We refrain from comment upon this extraordinary attitude of the judicial mind. If carried to its logical extreme it will compel each investor to limit his purchases to the securities of non-competing companies.

As for the Central Pacific, the opinion is now that its ownership will be left undisturbed and that the Union Pacific will make a traffic agreement with its western connection. From the standpoint of eastbound traffic delivered to the Union Pacific, this arrangement possesses great advantages over the former plan by which Union Pacific purchased the Central Pacific stock. If this plan had prevailed, the Southern Pacific would have had no incentive to send its eastbound traffic over the Central's line, and the Western Pacific might have been given a substantial share of this business. Under a traffic agreement, it would be to the interest of the Southern Pacific to turn over all its eastbound business requiring quick transportation to the Central Pacific and Union Pacific in return for the delivery of Union Pacific westbound tonnage to the Central Pacific at Ogden.

IMPROVEMENT IN THE NEW ENGLAND SITUATION

New England is at last coming to its senses. The first evidence of returning sanity is the report of the Boston Chamber of Commerce adopted on April 1 on the railway situation



JAMES J. STORROW,
President, Boston Chamber of Commerce, whose organization is against present disintegration of New England's system of railroads.

which while abounding in criticisms of the Boston and Maine and in suggestions for the improvement of its equipment and service, took strong ground against any legislation calculated to disturb the present relations between the Boston and Maine and the New Haven and Hartford. This marks the definite abandonment of the attempt to separate the two companies, an attempt which, if successful, would have resulted in serious damage to the Boston and Maine which would be powerless without the support of the New Haven to raise the capital for the rehabilitation of its property and for the large additions to its equipment which are required that it may handle the traffic offered. Next in order should and probably will be the dropping of the absurd charges of conspiracy in restraint of trade, and a rapid

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retreat of public opinion all along the line from their positions of extreme hostility which under the leadership of Mr. Louis D. Brandeis it has assumed.

In connection with the dying agitation against the Grand Trunk, which it was alleged conspired through its officials, with the officials of the New Haven and Hartford, to stifle prospective competition by abandoning construction of the Southern New England Railroad, there is an interesting announcement. On behalf of the Grand Trunk it is proposed that that company will turn over the unfinished property of the Southern New England to the State of Rhode Island, giving up to the state the results of an expenditure of $2,500,000, on condition that the state undertake to complete the road from Palmer, Massachusetts, to Providence, and to arrange for its operation. If this is done the Grand Trunk through the Central Vermont will either make a traffic agreement with the Southern New England; or the Central Vermont will lease the new line at a rental corresponding to 5 per cent on the actual cost of completion. The Grand Trunk is not financially able to complete the Southern New England, and if Rhode Island is not willing to come to the assistance of this ostensibly long hoped-for and ardently desired project, the contractors may be requested to remove their tools and apparatus. Thus is here offered an opportunity to Rhode Island to secure a through line into Canada entirely independent of the New Haven. The offer is made in good faith, and its treatment by the state will show the strength of the popular demand for railway competition in Southern New England.

PUBLIC DISCUSSION OF RAILWAY PROBLEMS

During the month the transportation problem, in some of its various phases, was discussed by a number of prominent railway officials.

Mr. Frank Trumbull, chairman of the Board of Directors of the Chesapeake and Ohio Railroad, in the course of an interesting address before the New York Traffic Club, directed the attention of his audience with especial emphasis to the rapid increase in regulative and restrictive legislation affecting railroads. His comments upon this point were as follows:

"There were more than 200 bills affecting railroads pending in the legislatures of this country last January. Some of these are as dangerous and drastic as they are in other instances ridiculous.

"There are bills to prohibit railroads from using the piece work or bonus system in their shops, to furnish engine cabs with spring seats; to transport freight at a minimum speed of 20 miles a day; to change the air in railway depots five times every hour; to give seats to persons who have bought season tickets, but leave them at home. Trespassing on railroad property, however, has only been recognized in three states.

"A total of 855 bills were introduced in Congress during the past two years affecting railways. Many of these get no further than committees but some of them do concern us. The parcel post law in force since the beginning of the present year has forced the railroads to carry the extra mail burden without adequate compensation. The self-sustaining power of the Postoffice Department is due primarily to the efficiency of the carriers.

"Regulation of railroads and industries in this country is steadily rising around the brinks of our commercial progress and we must be very watchful. Many bills are now pending in Congress which, if passed, would have a serious effect on industry.

* * * *

"The more legislation affecting railroads the more there will be to affect the general business of the country. We should prohibit overworking of men and provide for their safety in employment, etc., but I do not believe that regulation should be partisan. The railroads and business should keep out of politics and politics should be kept out of railways and business."

President L. F. Loree, of the Delaware and Hudson, discusses in a brief way, in his annual report, the various factors which are causing constantly increasing railway expenditures without providing for larger revenues. He presents and discusses an extremely interesting table showing the trend of return on railway investments during the past five years, in the following manner:

"In view of the constantly growing expense of operation, due to the demands of labor, to the increased cost of material, and to the new federal and state laws, which to a large degree needlessly and unreasonably increase the number of employes, and with no corresponding increase in the freight rates,—the following table indicating the investment which all of the carriers reporting to the Interstate Commerce

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Commission have made in property devoted to public use and their return on the total investment and on the new money going into the property since June 30, 1907 (the date that the new Operating Expense accounts of the Interstate Commerce Commission became effective), is of especial interest:

"It will be noted that the investment in Road and Equipment increased approximately $273,000,000 in 1908, $395,000,000 in 1909, $779,000,000 in 1910, and $597,000,000 in 1911, so that on June 30, 1911, the investment in the property devoted to public use was, $2,044,417,617 in excess of the investment on June 30, 1907.

"Comparing with 1907, there was available for interest and dividends approximately $119,000,000 less in 1908, $43,000,000 less in 1909, $52,000,000 more in 1910, and $9,000,000 less in 1911.

"In other words, the year 1910 was the only year in which the railroads received any return on the new money going into their property devoted to public use, and in that year they received only 3.56 per cent on the increase of $1,447,436,879 in the cost of Road and Equipment on June 30, 1910, as compared with the cost of June 30, 1907, while in no year did the rate of return on the total investment equal the 5.82 per cent earned in the year 1907.

"It will be noted that the taxes for the year 1911 increased approximately $23,000,000, or 29 per cent over the year 1907.

L. F. LOREE.
President, Delaware and Hudson Company.

	†1911.	1910.	1909.	1908.	1907.
Cost of Road and Equipment	$14,984,796,837	$14,387,816,099	$13,609,183,515	$13,213,766,540	$12,940,379,220
Revenues	2,852,854,721	2,812,141,575	$2,473,205,301	$2,440,638,832	$2,570,795,058
Expenses	1,976,331,864	1,881,879,118	1,650,034,204	1,710,401,791	1,737,698,201
Net	$876,522,857	$930,262,457	$823,171,097	$730,237,041	$833,096,857
Taxes	102,657,157	98,034,593	85,139,554	78,673,794	79,640,013
Operating Income	$773,865,700	$832,227,864	$738,031,543	$651,563,247	$753,456,844
OTHER INCOME:					
Hire of Equipment—*Cr*	13,616,738	11,802,699	8,118,416	14,140,351	
Joint Facilities—*Cr*	18,903,462	17,531,307	15,215,611	13,890,179	
Total	$32,520,200	$29,334,006	$23,334,027	$28,030,530	
Total Income	$806,385,900	$861,561,870	$761,365,570	$679,593,777	$753,456,844
INCOME DEDUCTIONS:					
Hire of Equipment%*Dr*	$31,345,508	$27,647,038	$24,794,781	$21,660,850	
Joint Facilities%*Dr*	30,371,290	28,819,675	26,111,803	23,136,983	
Total	$61,716,798	$56,466,713	$50,905,584	$44,797,833	
Net. Op. Income	$744,669,102	$805,095,157	$710,458,986	$634,795,944	$753,456,844
Per cent on Cost of Road	4.97%	5.59%	5.22%	4.80%	5.82%
Inc. Cost of Road over 1907	$2,044,417,617	$1,347,436,879	$668,804,295	$273,387,320	
Increased Return over 1907	*8,787,742	51,638,313	*$42,997,858	*$118,660,900	
Per Cent Increased Return to Increased Cost of Road	*0.43%	3.56%	3.56%	*6.43%	*43.40%

†Although the 1911 report has not been published, we were able to get the information by sending a representative to the Commission. The 1912 figures, although in the hands of the Commission, have not been compiled, so that 1911 is the latest information available.

*Decrease.

NOTE.—The following amounts were deducted from the 1907 figures shown in the Interstate Commerce statistics, as they represent the figures for switching and terminal roads; while subsequent reports of the Commission excluded such roads and the data is unobtainable: Road and Equipment, 90,065,108; Earnings from Operation, $18,310,520; Operating Expenses, $11,117,613; Taxes, $672,362.

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"The necessary annual increases of capital investments by railroad corporations of the character above indicated must be largely made through new issues of long term securities. Such securities will hereafter be placed with some difficulty at such rates of interest as the companies can afford to pay, unless there can be secured to the carriers a fair rate of return upon the cost of the improvements to their properties."

At the National Conference at Chicago to consider improvement in the distribution of farm produce between producers and consumers, Chairman B. F. Yoakum, of the Frisco Railway Company, called attention to the need of additional railroads in the country west of the Mississippi River, which he said is rapidly becoming the producing territory for surplus agricultural products.

"There are not over 1,000 miles of new railroads now under construction in the United States," he declared, "while on June 30 last it was officially stated that the Dominion of Canada had 10,000 miles of railroad under construction. Our public men as a rule have not yet realized what confronts us in the way of agricultural development. The production of food supply, its movement from the farm to the market and its relation to the consumer require the same scientific and intelligent consideration as does the movement of raw materials to the manufacturer, in readjusting our present tariff schedules."

Mr. Yoakum, in dealing with the wastes of distribution placed at $35,000,000 the value of 100,000 carloads of fruits and vegetables which rot on the ground from the lack of shipping and storage facilities and knowledge of receptive markets. The loss in vegetable fibres burned is placed at $250,000,000 and the additional gains which farmers should receive by occupation in selling to best advantage at $1,500,000,000, making a total loss from waste, mainly due to defective distribution, of $1,785,000,000.

Attacking the farm problem from a different standpoint, Mr. James J. Hill, in a recent interview, called attention to the necessity for diversification of crops and improvement in agricultural methods. "Money is high in the East, and I believe that railroads should exercise extreme caution in making financial commitments just now. The outlook is not altogether favorable. Everyone wants money and everyone is paying high prices for it. Great Northern, already in a strong financial condition, will maintain as large a cash balance as possible, against future contingencies. It may be true that European funds will be released when the Balkan war is settled, but will they come here?

"In the Northwest," he went on, "the banks are loaning money to farmers to encourage the raising of cattle and livestock. We do not want to encourage land speculation. It may be a good thing for our farmers not to raise so much wheat. They should turn their attention to the coarse grains, like oats and barley. Let them feed their surplus of these grains to their cattle and live stock. They will like the diet and thrive on it. Corn is not necessary as fodder. Why, last summer a farmer from Manitoba brought a steer down to Chicago who had never seen a peck of corn. That steer swept the boards and took all the big prizes. * * Suppose that the yield per acre of wheat is increased ten bushels, bringing it up to 25 bushels. On our acreage of 46,000,000 that would mean 460,000,000 more bushels of wheat every year. What would happen to wheat prices? Why, they would go down to 50 or 55 cents a bushel. Germany, England, Belgium, France and other Continental countries are applying with great results, the principles of intensive development. Why can't we do the same?"

President Mellen, of the New Haven, is continuing his campaign to educate the people to an understanding of the transportation problem, and of the difficulties which his company is encountering in its solution. His latest utterance published, as those which preceded as an advertisement, follows familiar lines. He refers to New England as a great terminal yard, in which real competition among railroads cannot exist, whose railway system is foreordained to be operated as a unit, and he urges his fellow citizens to assist him in his efforts to remedy the mistakes of construction and location, made in the past, and to unite in an effort to preserve the transportation situation of New England. Mr. Mellen's remarks follow:

"In its relation to the other transportation systems of the country, that of New England should be considered as a great terminal yard in which should be handled the business of all connecting systems of transportation on substantially the same terms and conditions, without discrimination, fear or favor, the same as would be the case were all the New England roads under ownership by the federal government.

"The competition of the New England roads is incidental and not material; were

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they all erased from the map, should they disappear from the face of the earth and a free hand be given to build for the New England states a system of transportation best calculated for the wellbeing of her people and the largest development of her material resources, and were that task committed either to a corporation or to be performed by the nation, it would result in a substantial duplication of what we now have. No one would rise to claim there was a suppression of competition, and no more should any one now.

"Many of the existing lines were poorly located, and the poverty of these originally constructing them compelled a character of construction ill-fitted to handle the business of the present time. But in the main they were what the territory needed at the time of their construction, and were as good as the business at hand warranted calling into being. Now their business has largely outgrown their capacity for service, and they have arrived at a stage where radical rebuilding and enlargement have become vital, not only to themselves as an agency for service, but to the population whose welfare they were intended to promote and secure.

"Men will come and go, but the system of transportation has been built up to endure, and present agitation and apprehension will be looked upon hereafter as we now look back and smile at the prophecies of trouble and disaster when the Colonies of North America became the United States.

"A creature can never become greater than its creator, and no corporation will ever dominate a community that has the power, resourcefulness, and determination, to govern itself."

Curbing the Sherman Law.

THE following open letter to President Wilson, has been sent by John Kirby, Jr., President of the National Association of Manufacturers, relative to the provision in the Sundry Civil Appropriation bill prohibiting any part of the $300,000 appropriated for the Department of Justice from being used to enforce the provisions of the Sherman anti-trust act against either the associations of farmers or labor unions:

"NEW YORK, April 16, 1913.

"HIS EXCELLENCY, WOODROW WILSON,
"President of the United States,
"Washington, D. C.

"MY DEAR MR. PRESIDENT:—The National Association of Manufacturers, of which it is my honor to be President, is an organization composed of nearly 4,000 manufacturing concerns, in practically every state of the Union. The fundamental purpose of our organization is industrial freedom—freedom from the despotism of unconscionable labor dictation toward both employers and the vast majority of workingmen throughout the country who are unaffiliated with trade unionism. Our organization is non-political. Its spirit is patriotism and loyalty to our Republic, its laws and institutions.

"We affirm our belief in equality of opportunity in the impartial administration of law, believing that upon such framework only can economic and social justice be effectively realized. We do not oppose trades unions, *per se*. We favor them. Particularly, however, do we deny that trades unionism in many of its methods is above or outside of the just administration of law.

"I have observed in the daily papers that there has been introduced into the present session of Congress the Sundry Civil Appropriation bill, wherein there is a provision specifically prohibiting any part of the $300,000 appropriated for the Department of Justice from being used to enforce the provisions of the Sherman Anti-Trust Act against either the associations of farmers or labor unions. You are, of course, aware that this particular provision was incorporated in the Sundry Civil Appropriation bill in the last Congress and was vetoed by President Taft in a strong, vigorous memorandum, with which you are undoubtedly familiar.

"Speaking on behalf of the vast manufacturing constituency comprising our organization, I take the liberty of calling your earnest attention to the inherent and impossible wrong represented by this particular provision. In many of your public utterances you have wisely and clearly emphasized the necessity, in our social, economic, and political body, of striving to attain, in the last analysis, exact justice. With this underlying purpose I express my complete and sincere concurrence.

"But I hasten to assure you that the particular provision under discussion is violative of every consideration of our law and statutes. That the provision is special legislation in ingenious and subtle form will be obvious to you upon careful inquiry. That it is an attempt to subvert the operation of a duly enacted statute of Congress by a covert negativing of the operation of such statute (the Sherman Anti-Trust Act) will be clear to you after the most cursory examination. That such a device, to render abortive a statute enacted by the people, should be promptly and decisively frustrated seems so clear to me that further argument becomes almost unnecessary.

"If the so-called Sherman Anti-Trust Act should or must be amended by due Congressional method, that is a proposition the merits of which will be open for legislative debate and the expression of popular opinion through the people's representatives in Congress.

"But while the law is upon the statute book, and the law contains no exemption, does it not irresistibly occur to you that to limit the operation and application of the law by the subterfuge of a restrictive prohibition through the medium of an appropriation is dangerously near, at least, implied nullification? Do you not see the indefensible character of this exemptive provision, and how utterly at variance such method is to our orderly procedure for the administration of our public laws?

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Contemporary Opinion

The Confiscation of Railway Net Earnings.

ATTENTION has before been called in these columns to the growing tendency on the part of investors, to neglect railway securities for those less subject to restrictive influences. No industry of modern times has made a stronger or more consistent effort to produce favorable results under oppressive conditions, and yet the situation of to-day is so charged with uncertainty, so intimately associated with restrictive legislation which recognizes no compelling financial responsibility, that optimism is stretched to the breaking point to gather encouragement from the conditions which confront the carriers. The hope in the situation rests in a growing appreciation on the part of business interests of the vital connection between their continued success and that of an adequate, progressive transportation plant.

Regulation, in itself, is not the bone of contention, for railway officials, generally recognize its necessity and permanency in railway operations. There is a vast difference, however, between regulation which destroys rather than constructs, restricts rather than permits progress, and which adds enormous financial burdens without providing for additional compensation. Such regulation drives capital away from railway investments and leaves those in command poorly equipped to meet the demands of an expanding commerce.

Banking houses, which handle railway securities, have, for some time felt the influence of such regulation upon the public demand for railway securities. The *Bache Review* of April 5th, published by the banking firm of J. S. Bache and Company, has the following to say regarding the general situation:

"It is remarkable that the condition and needs of so great an industry as that of the railroads—the largest industry we have in our commercial world and the one whose prosperity affects favorably all other enterprises—should be neglected. But the railroads for several years have been laboring under adverse conditions, the result of unwise legislative action, and there seems to be no coercive force to relieve them.

"The roads are being hampered by the Interstate Commerce Commission, by the Government in mail contracts, by state legislators and commissions, and by labor combinations.

"The burdens imposed upon them and the privileges withheld make it impossible to earn adequate sums to protect and insure dividends with ample margins of safety and so build up credit, attract investment, and make badly needed equipment and terminal expenditures in sufficient proportion to keep pace with the country's growth and facility-needs. Taxes have been increased enormously and higher wages are being constantly demanded. This week the Full Crew bill was signed by Governor Sulzer and will add $2,000,000 to railroad expenses in this state. This same character of bill was vetoed by former Governor Hughes and Dix and has been killed recently in many states. Railroad men and experts say that no greater safety will be obtained under this bill, but rather that it will prevent other expenditures for real safety which cannot now be afforded.

"Fair play for the railroads should be demanded by the business public, whose vital interests and those of the whole people are damaged by continuance of the present conditions. The four million investors in railroad stocks should make themselves felt in state and national legislatures."

The Latest from Brandeis.

MR. LOUIS BRANDEIS, the Boston lawyer, has again come to the assistance of the railways. This time his mighty intellect has been trained, for the moment, so to speak, on the solution of the Firemen's Wage Controversy; and, presto change, from $50,000,000 to $60,000,000 are saved by more scientific stoking, the firemen's salaries are increased, the railroad coffers enriched, and everybody happy. Simple, isn't it? Of course, Mr. Brandeis might as well suggest that the surest way to settle the question as to whether the moon is made of green cheese, is to send a delegation, preferably of experts of the Brandeis stripe, to investigate. As to the method of procedure, this is a mere detail which should not be permitted to burden the intellect of a genius. The New York *Journal of Commerce*, commenting on Mr. Brandeis' latest remedy for railway ills, has the following to say:

"No doubt Mr. Brandeis is right in assuming that the firemen might shovel coal more scientifically if they were experts in the laws of combustion; and that something might be saved, as at the best, it is estimated that only about 22 per cent of the units of heat ever get transformed into units of working power. The knowledge of this is one of the strongest reasons impelling a substitution of the electrical system as fast and as far as practicable even on long line railroads. The time is fairly estimated within which the railroad stoker will go out of commission except in a very limited way. In any case most firemen would be inclined to sneer at the thought that they don't know their business properly, and the railroads would have a vast job on their hands to break them into new methods. Wage quarrels would not cease as the railroad servant is very apt to raise his terms as the management makes or saves more money, especially if he is credited with being the author of the improved condition.

"If Mr. Brandeis is familiar with the electrical and mechanical problems of railroading as they are being gradually solved, he knows that many of the most competent authorities in the country are confident, that as far as railroads, even, are concerned, the coal problem is tending to solve itself; and that it will not be by improved shoveling, but by eliminating shoveling in toto on locomotives that the permanent great betterment will come about, on a great majority of our railroad lines in the actual running of trains."

The Labor Influence upon Class Legislation.

WHATEVER may be said to the contrary, recent enactment of "full crew" legislation, as, for example, in the states of New York and New Jersey, offers a striking illustration of the "class" influence of organized

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labor upon the activities of legislative bodies. Both states in question have regulative bodies with authority to deal with matters of this character. Apparently, however, more was demanded than the real requirements of a fair regulation called for, with the result that the "influence" was brought to bear in quarters which are particularly susceptible to its numerical strength. The New York *Journal of Commerce*, discussing the signing of the New York "full crew" bill by Governor Sulzer, has the following, in part, to say:

"There seems to be no doubt that Governor Sulzer's signing what is called the 'full crew bill,' requiring the employment of a specified number of persons in certain parts of the service on railroad freight and passenger trains, was due to the political pressure of the Brotherhood of Railroad Trainmen. A similar bill was vetoed by both Governor Hughes and Governor Dix on the ground that it was not shown that such additions to the 'crews' of railroad trains were necessary either to efficiency or safety, and that it is a matter which should be left to the discretion of the public service commissions upon inquiry into such case. Governor Sulzer in his memorandum of approval of the bill says that 'every safeguard should be employed by the railroads to prevent wrecks and protect the property of shippers and to conserve human life and limb, not only of employes but of the traveling public.'

"Nobody denies that every needed safeguard should be used for these purposes, but it is the universal testimony of railroad managers in states in which such additions to crews have been arbitrarily required, that they were not necessary and have served no such purpose as is pretended. They give employment to more men, make the work of some easier and less efficient, and add substantially to the cost of operation, which must in the end be paid by shippers and the public, unless the railroads are to be hampered in other needed expenditures. It is for the interest of railroads to adopt every safeguard to 'prevent wrecks,' for they are among the most costly incidents of their business. This requirement for what would be more properly called 'surplus crews' for railroad trains is the result of persistent political pressure by a labor union, and its purpose is to secure employment for more men and give them an easier time at the expense of the railroad corporations.

"Governor Sulzer is quoted as denying that he had a conference with Mr. John Fitzgibbon, legislative representative of the Brotherhood of Railroad Trainmen, before the election and promised to sign such a bill if it should be passed, and that he would come out openly for it but for the fact that if he did the railroads would 'spend a barrel of money' to defeat him. But a letter of this same Fitzgibbon to the officers and members of his brotherhood is published, which, if authentic, flatly refutes the denial.

"Regardless of any question that may be raised as to the authenticity of this letter, there is no reason to doubt that what it refers to was an actual occurrence. Its significance transcends in importance the merits of the full crew legislation. It exhibits an organization of workingmen using its influence in politics to secure class legislation for themselves at the sacrifice of every other consideration involved in a state election. Its members are in effect advised and solicited to vote for a particular party candidate for Governor because he favors and will approve a special act of legislation in their behalf, and he is induced to promise to do so to secure their votes. It exhibits 'labor men,' in the sense of members of a labor union, as acting directly as a 'class' in politics in the most insidious way. A labor party, avowing its principles and policy and working openly for its object, can be met openly and voters can favor or oppose its efforts with their eyes open, but nothing could be more pernicious than this kind of secret influence for securing legislation by the virtual promise of votes by such an organized body as a labor union. Are such methods of 'class' influence any less to be condemned when practiced by 'labor' than when they are pursued by capital?"

A surprisingly large number of other newspapers condemn the passage of these laws. As the New York *Evening Post* puts it:

"We do not believe that Governor Sulzer can satisfactorily defend his signing of the Full Crew bill. The railroad presidents who protested against it brought up convincing reasons why the measure should be vetoed. In the first place, they are willing to submit the whole question to the Public Service Commissions for decision. For what else have we created these Commissions, save to deal with just such problems? Why have they been so delinquent as not to order, or to request the Legislature to order, 'full crews'? Surely, they are experts as to what is right between the railroads, the public, and the railroads' employes, and they have yet to learn that there are accidents due to trains being shorthanded. We have heard much about overworked engineers, but very little about undermanned trains. More than that similar measures have been vetoed by such Governors as Harmon of Ohio, Foss of Massachusetts, and Charles E. Hughes of New York. Finally, the railroad heads charge that the $2,000,000 this would cost the railroads would be pure waste. Now, in these days of scientific management, the public, which will eventually have to shoulder this burden, has a very genuine right to have this matter looked into by experts in its behalf. Unfortunately, these bills have been slipped through with little discussion or public knowledge."

Railway Losses and Rates.

IN a recent editorial, the New York *Evening Post*, in discussing the losses occasioned by the spring floods of the Middle West, and their possible effect upon freight rates, has the following to say:

"Estimates of losses to the railroads, caused by the floods, are necessarily only guesswork as yet. They are put at from $35,000,000 to $50,000,000; and the sum does not seem unreasonable when one remembers the number of bridges destroyed, the miles of track washed away, the other physical property wiped out, besides the loss caused by demoralization of train service, delays, extraordinary outlay, and the future diminution of transportation business from the ruined districts. Now we should like to ask the physical valuation men what place in their calculations they reserve for such unforeseeable and enormous impairments of railway property. Will they undertake the role of an earthly Providence, and tell the managers just what the average loss will be from disasters of this kind over a period of years? Or, granting that increased capital expenditure warrants higher freight charges, would

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they say that the thing for the railways to do would be to impose higher rates at the very moment when the people in the afflicted territory are least able to pay them? Such questions go to the heart of the theory that you can exactly and scientifically determine railroad rates by an exact and scientific physical valuation of railway property. For in the latter there are too many variables to make the process at all a safe guide. This is vividly shown just now in the blow which the railways have received through the floods. But the same thing is shown all the time in a thousand ways, less startling, but no less conclusive against the views of the rigidly doctrinaire railway valuers."

A Mollifying Report.

EVIDENCE continues to accumulate that a saner public judgment is coming to the relief of the New England situation, and that those at present in control of the railway interests, will be given another opportunity to work out the transportation problems of that section.

The most powerful commercial organization of that section, the Boston Chamber of Commerce, has recently emphatically declared itself as opposed to any present disintegration of the system built up under the Mellen regime. To quote the Boston *Transcript*:

"In the light of the report of the directors of the Chamber of Commerce concerning the railroad situation in New England, President Mellen and his directors may well feel that their day of conference in Boston was not without effect; for the report is obviously intended to be mollifying in various directions. The nine recommendations offered by the directors in effect favor extending the lease of life of the present management of the New Haven pending further evidence of its ability to 'make good' and to this end various suggestions are offered which, in the opinion of the directors, 'will bring immediate relief irrespective of the final settlement of some of the questions of public policy involved.' These include the following improvements for the Boston and Maine: more locomotives and cars, better Boston freight terminals, more facilities and better service at junction points, which with additional tracks contemplated by the railroad officials, indicate an outlay of twenty-five million for the Boston and Maine during the next few years.

"Other mollifying suggestions on behalf of the public include an increase of Massachusetts representation on the directorate of the Mellen system; a recommendation to the Legislature to enlarge the authority and increase the resources of the Railroad Commission and the development of traffic with Canadian points.

"For those who were expecting a ringing declaration of public policy toward the railroads the report will prove disappointing. But to undertake to mollify the public, the railroad management and the railroad investor is too large a task to accomplish in the course of a single report, and the directors have obviously sacrificed at several points their opportunity for constructive criticism and specific recommendations in an effort to reconcile conflicting interests within and without their own body. They have tried to prepare a report that would be indorsed by a majority of the members, be acceptable to Mr. Mellen, to the railroad investors, and of some slight service to the Legislature."

Be Cheerful.

WHILE it requires an effort to be cheerful at all times, it seldom fails to pay. So far as its effect upon the relations between the public and the railways are concerned, it becomes a real asset, and as such is generally advocated by railway officials. In this connection, the following notice recently issued by a Western road to its employes, is of interest:

"A good laugh is better than medicine. Learn how to tell a story. Learn how to keep your troubles to yourself. The world is too busy to care for your ills and troubles. Learn to hide your pains and aches under pleasant smiles. Meet everyone with a smile; a good-humored man or woman always is welcome. Above all, give pleasure."

Commenting on this statement the Baltimore *News* says:

"This excellent advice will mean a decided change to the traveling public if it is followed. No people need it more than Americans, caught in the swing and rush that is characteristic of them.

"And it may be added that no class of people need it more than railroad men. The average conductor or brakeman is not, as a rule, cheerful. His loquacity is usually confined to such formal expressions as 'Ticket, please,' and 'Change at Smithtown.' Only a bold passenger, under present conditions, will venture a jest with the powerful and often gloomy individual who can put him off at the next station.

"In these days of change it is pleasant to know that even the despotic frigidity of the man with the ticket punch is not immutable. What a worthwhile world this will be when the noise of the rattling wheels and coughing engine of a passing train will be drowned by the roars of laughter from passengers diverted by the conductor's latest version of 'Why does a chicken cross the road?' A delighted chuckle in the distance will mean the approach of the New York express and a fading chorus of ha-has will mark its departure."

The Philadelphia *Record* also finds comfort in instructions recently issued by the Pennsylvania Railroad to its trainmen to the effect that they shall instruct passengers regarding the cause of delays. It says:

"It must ever be a great mystery why the railroads have not before taken up the reform announced by the 'Pennsy,' that when a train is delayed on the road the conductor shall inform the passengers as to the cause of the holdup and the best means, if any, of continuing their journey. This is sound common sense and will remove a frequent cause of exasperation. The mind of the average passenger has never been able to fathom the mental processes of the ordinary conductor and brakeman in the face of such a contingency. If a freight car has jumped the rails and blocked the track ahead, or if an overheated journal has made it necessary for a passenger train to stop for a short time, thus blocking trains behind it, there has never seemed to be any particular reason why the fact should not be

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stated simply to an inquiring passenger. Instead of this it is the custom for the conductor to invest himself with all the dignity and reserve of a captain on the bridge of an ocean steamship, and to treat the trivial accident as if it had all the possibilities of a Titanic disaster. If the railroads will cut out more of these absurdities they will add a new pleasure to travel."

The British Prime Minister on English Railways.

THE London *Times* of March 18th contains an interesting account of the audience which the Prime Minister of England gave to a deputation of the Parliamentary Committee of the Trades Union Congress. The Trades Unionists maintained that the Prime Minister should advocate the nationalization of the mines and the railways.

Mr. Asquith maintained that the nationalization of the mines was quite out of the question, but agrees that railways stood on a different footing in that state controlled and interfered with the operation, the rates, and with various other features of the railroads, and that when the railroads were originally built, it was contemplated by Parliament that under certain conditions the carriers might be taken over by the state.

That contingency had always been, at any rate, a possibility which those who invested their money in railway enterprise were invited, and indeed bound, to contemplate. But there were practical difficulties of a very serious kind in the application of the principle of nationalization to the railways. He was quite sure that any such operation, carried out on reasonable and equitable terms, would be immediately followed by very large demands from two entirely different quarters—from the traders in the matter of rates and from the workers for better conditions as to wages and hours of labor. The prospective advance in the net receipts which had been forecast that day very likely might come, but in existing conditions would, he strongly suspected, be swallowed and more than swallowed up before the railways had been in the possession of the state for much more than twelve months. Those were things which, from the point of view of the taxpayer, they could not leave out of account, however great might be the advantages of the diminution of competition and the general co-ordination of the railway system which might follow from something in the nature of a central management. At any rate, he remained of the opinion that, the burden of proof being on those who favored this proposal, that burden had not, from the point of view of the community, been adequately discharged.

The Manchester Ship Canal of England.

IN the current number of the *Economic Journal*, which is published by the Royal Economic Society of London, Mr. W. M. Acworth, the well known railway expert, has an article reviewing the book recently published in this country by Harold G. Moulton, entitled "Waterways versus Railways." Mr. Acworth points out some very striking facts relating to the Manchester Ship Canal, as follows:

"To Englishmen, the chapter on the Manchester Ship Canal has a more direct interest, especially as most people believe that the results have justified its construction. Mr. Moulton shows that the Canal was estimated to cost £8,000,000. It has cost more than double. It was estimated to pay a 5 per cent dividend upon the whole share capital of £8,000,000 in the second year of operation. In fact, now, sixteen years after its opening, it has never even met the interest on its debt. It was estimated to earn in the second year of operation £479,000 net. In fact, it earned £137,000 gross. Further as to its indirect effects: Manchester shows a growth of population during the decade 1891-1901 less than that of Liverpool and Birmingham, and not half that of Leeds; the reduction in railway rates between Liverpool and Manchetser is 'slight at best.' One might perhaps add that, had the £17,000,000 been spent, not on making a canal, but as a free gift to the Lancashire railway companies, there can be no doubt that they would have agreed in return to carry cotton for nothing, and to give to manufacturers and operatives alike perpetual free passes between Manchester and the pleasure towns of the Lancashire coast."

A Reported Revolution in Steel Manufacture.

THE Philadelphia *Press*, commenting editorially on the recent report from Europe that a new process has been discovered whereby the cost in the manufacture of steel has been greatly reduced, has the following to say:

"Should an announcement from across the Atlantic prove correct—and it is said to emanate from well-informed quarters—the steel industry of the world may be revolutionized in the near future. A process of converting at a relatively small cost iron ore of the lowest grade into steel of excellent quality is said to have been discovered.

"Experimental tests with 'iron sands' and other low grade substances have demonstrated to the satisfaction of steel manufacturing experts, according to the despatches, that an enormous saving of money can be secured by the cheaper mode. This will be augmented by the vast quantity of material now lying waste which, it is asserted, is capable of being smelted without the aid of a blast furnace, and made steel direct in a single operation. No details are given beyond the general statement that the rough ore is reduced by heat from a gas produced from the slag, at present a useless by-product.

"The economy of manufacture combined with the utilizing of basic material now unmarketable promises the introduction of a new era in the manufacture of steel. It is claimed for the new process that good steel can be produced at one third of its present cost. Should further investigation confirm these claims, the discovery mooted will be hailed amongst the triumphs of a swiftly progressive age. But Pennsylvanians interested to a stupendous degree in any new process of making or hardening steel will wait for fuller information before passing judgment on the alleged invention."

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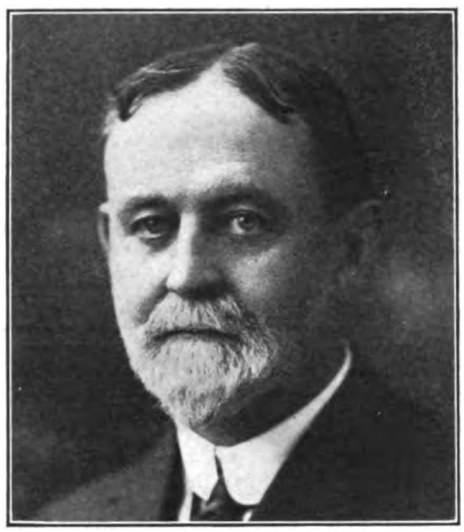
Looking Into the Future

By B. A. WORTHINGTON,
PRESIDENT, CHICAGO AND ALTON RAILROAD.



B. A. WORTHINGTON.

DURING the past half century the railroads have been developing the resources of this country in a perfectly natural way. That certain abuses have crept into their methods is not at all surprising, for wherever active competition exists we shall always find abuses of a more or less serious nature; and when the apparently ideal methods of small business are applied by a sensitive, active, alert organization to a business having a net capitalization of $1,400,000,500, relatively unimportant shortcomings are wonderfully magnified and assume unusual significance. Yet during this period of rebating, discrimination and kindred evils, the wealth of the United States increased from $7,000,000,000 in 1850 to $107,000,000,000 in 1904, $65,000,000,000, or over half of this enormous wealth, having been developed during the last twenty-four years of this period, while the pernicious practices so often referred to were under full sway. From this point of view the matter of rebating, etc., dwindles to relative insignificance, for we must bear in mind that this enormous wealth is *substantial* wealth, invested in the gilt-edged securities of farm lands, city property, industrials and public utilities, all enhancing in value dependent entirely upon future development of the railroads.

But I hold no brief for the rebating system or discriminatory practices. No right-thinking railroad man in the country is but thankful that these days of extortion are passed forever. Nor do I claim that railroad business methods or conditions are yet perfected, but in justice to the sensitive economic features involved, I do plead for the most careful premeditation, and that should doubt arise in regard to any features, it should be carefully hedged in with all the proper safeguards of public welfare, bearing in mind the all-important lessons in history, and that economic and natural laws are always superior to statutory enactments and must not be disregarded.

MEETING CONDITIONS OF THE FUTURE.

The railroad situation at the present time is as delicate as it is complex. In the decade 1890 to 1900 the volume of freight traffic handled by the railroads was doubled, and in the following decade it was doubled again—and still the end is not in sight. Our farms are yielding but a small proportion of the crops that are possible by intensive cultivation. The density of our population is less than 31 persons to the square mile, while the population of the United Kingdom is 373 and that of Belgium 660 to the square mile; and if we project a line into the future from the point which we have established in the past, we cannot misapprehend the further development which lies directly before us.

But whether the volume of business increases or whether it decreases are speculative conditions, alike threatening to the railroad situation. An increase in the volume of business is an absolute necessity under present conditions of reduced net earnings per unit of service, but to provide facilities to handle an increased volume of business is a financial impossibility unless new capital can be induced to enter the field of railroad investment.

In referring to this phase of the question, Howard Elliott, president of the Northern Pacific Railway, a man who has fought his own way from the humblest ranks to this position of eminence, stated in a recent address that there should be $1,700,000,000 new capital put into the transportation business of the United States each year for the next five years—a total of $8,500,000,000, or 60 per cent of the present calculated value of all our railroad property. This practically amounts to reconstruction throughout in order to handle the business now offered and make suitable provision for what we *know* is ahead of us. This means the replacement of obsolete equipment, the elimination of grades, double-tracking, safety appliances, also innumerable non-productive improvements, such as the elimination of grade crossings, modern station facilities, etc., demanded by the public—in short, better and safer transportation throughout.

The expenditure of $1,700,000,000 new capital each year for the next five years would not mean that the wealth of this country would be decreased to this extent. Far from that! It would mean that this amount of money would be spent for labor and materials right here at home, and every cent of it would revert to the people in the most satisfactory forms acceptable to them. What a glorious vision of prosperity this presents!

GOVERNMENT REGULATION NOT OBJECTIONABLE.

The original founders of our railroad systems, visionary though they may have been and doubtless were, could never have thought possible the wonderful development and the amazing prosperity of the past twenty years. History presents no precedent, simply because the possibilities of transportation have never before been so thoroughly exploited. Neither could this development

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have been possible, save for the acute business instincts of private ownership of railroads and the widest freedom of individual initiative, neither of which could survive government ownership or government operation.

Government control is not at all objectionable to the railroads; in fact, it is a necessity; and its restraining influences are entirely wholesome. In many respects the government has already produced results which the railroads could never hope to accomplish—such, for instance, as the elimination of rebating and other discriminatory practices inherent to active competition, all of which practically have been abolished from the sphere of railroad operation.

But in paring down the claws of this alleged monster, the railroads—a regular Chinese dragon to those less familiar with their economic and strategic uses, still the same sacred carrier of burdens and the emblems of progress that our ancestors worshiped forty centuries ago—they have cut into the quick, and until the wound heals by natural processes, progress will be crippled. In taking away from the railroads the prerogative of rate making and by prescribing numerous restrictive conditions of operation which tend to reduce revenue and increase expenses, they have taken away from the railroads their natural weapons of offense and defense, and have left the railroads apparently at the mercy of an unsympathetic public, which, laboring under grave misapprehension, sees nothing but misdeeds, naturally, artificially and oftentimes maliciously, magnified.

Railroad Facilities Inadequate to Meet Requirements.

Owing to this unfortunate state of affairs, the railroads of the United States have now reached a stage where they are unable to provide adequate terminal facilities where they are most urgently required, and where congestions recur annually, lasting for months at a time, regardless of the extreme shortage of equipment. The steadily decreasing margin of safety in railroad operation, amounting to substantially 28 per cent in the past ten years, has made it compulsory upon the part of the railroads to cut maintenance charges, and accordingly the physical property—roadway and rolling stock—has in many instances been sacrificed to produce even these results, and visions of the future have become obscured by the run-down conditions of to-day.

Railroad vs. Industrial Return on Investment.

Turning from this unpleasant aspect, in the shadow of the gloom which has fallen upon the railroad situation the investing public looks askance at the red figures in income account, like fire destroying property values, and turns reluctantly to industrials, where obscurity seems to promise security, where the net return upon capital invested is more than twice as great as in railroads, where the public is not a factor to consult, and where the government is in no wise sponsor for results.

That the railroads should expect to share in the general prosperity of their own making is not surprising—excepting that the railroads yield but 5.7 per cent upon investments, while manufactures yield over 12 per cent, and the value of farm land and city property is appreciating in value so rapidly that comprehensive data is not available. In view of the risks assumed in railroad undertakings, the developments which they have always encouraged, and the excellent service which they are rendering to the public even under the present restrictive conditions, it would appear that more encouraging results should be possible along this line of investment, as a more substantial guaranty of public safety, financially and commercially. The suggestion that railroad investments should earn as much as investments in manufactures, for instance, is not out of order, because the right to earn a reasonable profit upon legitimate investment is all that is asked for, and the improvement of railroad property and the enlargement of its facilities is a matter of urgent public necessity. This menace of financial impossibilities thrust upon the railroads should be speedily removed as a restraint to commerce, which in fact, it is, and in no small measure.

Dividends on Railroad Stocks.

In the matter of dividends on railroad stocks, the impression seems to prevail that a dividend of, say 7 or 8 per cent on stock would be equivalent to throwing that much wealth into the sea, when in fact, it would merely revert to the people—to the widows, orphans, business men, financial and endowed public institutions, where it would be reinvested immediately in one highly desirable form or another. Certainly this would be no crime. It would be an economic condition much to be preferred to the closed shop, with roundhouses standing full of crippled locomotives, yards filled with bad-order cars, roadway neglected because of financial stringency, and wasteful congestions prevailing—all resulting in unsatisfactory service to patrons, unsatisfactory results for the railroad managers, and a passing of dividends for the shareholders. The question is who *does* get any benefit from this condition of affairs.

Railroad Securities Held Abroad.

Another phase of this question, one which should cause the deepest reflection, is the fact that from 20 to 25 per cent of our railroad securities are held abroad. With private ownership of railroads as it exists to-day, it is useless for the government to attempt to evade the responsibility for the depreciating values of these securities, which are being returned to us under protest. Our "commerce laws" originally were enacted for the protection of bona fide investors in railroad securities and to prevent practices that could not be measured by a strict code of business justice, and if we would avert national dishonor, more undesirable than anything else that could happen, we should be ever conscious of this delicate situation and leave nothing whatever undone to satisfy in the fullest measure our pledges of faith held abroad.

The armies and navies of the world have always existed primarily for the protection of commerce. Relentless wars have been waged, and shall yet be waged, because of conditions that affect national wealth and national welfare, and nothing affects national wealth and national welfare as do conditions of commerce.

No individual has ever knowingly sought to destroy a source of his income, but he will fight, and fight to the death, to preserve it. Nations are merely groups of individuals, none the less sensitive and responsive to these same conditions, and as long as foreign capital invested in American railroads yields just and satisfactory returns to the strong financial institutions of Europe, their

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dogs of war will ever remain chained up at home, American railroad securities will be our national security—not the misnomer they seem to be to-day—and the International Peace Conferences at The Hague will be merely a waste of effort so far as America is concerned.

This condition of affairs is peculiar to America alone. It is one of our most valuable assets, the most formidable defense that any nation has ever erected. Let us not tear it down with our own hands.

Moreover, we are now approaching the time when it will be possible to materially strengthen this position, when securities must be floated for the $8,500,000,000 which should, and must, be put in our transportation system within the next five years, and we cannot afford to ignore the opportunity that is now knocking at our door.

Judge Knapp and Commissioners Lane and Prouty Agree.

In this tangled web of conflicting conditions now lying before us, I believe that the ends have finally been gotten together. I believe the crisis is passed—even perhaps as our eminent authority, Mr. Lane, expresses the thought respecting government ownership: "That stage of despair, or resolution, we have not yet reached."

In his fine, deliberate, cautious manner, possibly the question of government ownership and operation of our railroads may have slipped by unobserved and into oblivion with the changing of his own attitude upon this point. Let us hope that it has.

In the beginning of this article to which I have referred, Mr. Lane states in regard to the personnel of the Commission:

"It would be hard to find seven men who differ more in temperament, in training, or in type of mind, than the present commissioners. We differ as one leaf from another in our political sympathies. Often we do not arrive at our conclusions from the same strategic angle."

Yet it is worthy of note that Mr. Lane's predecessor, the Honorable Charles A. Prouty, ex-chairman of the Interstate Commerce Commission, a man who, like Mr. Lane, has made a life-long study of the perplexing railroad problems, has stated:

"If the time does come when railroad property is sacrificed to public clamor, when the public demands its confiscation and the regulating tribunal concedes that demand, no property will be of much value. The day will have come when the obligation of private rights is no longer observed."

The Honorable Martin A. Knapp, likewise an ex-chairman of the Interstate Commerce Commission, a tireless student of the railroad situation, and one of the most profound thinkers in this country, expresses his thoughts as follows:

"I should regret to see the government take up the business of owning and operating our railroad lines."

It would, therefore, seem that these three able analysts, individually and by different methods, have arrived at about the same conclusion—that the square of commercial condition cannot be made to fit satisfactorily into a theoretically perfect circle of public ownership.

When this question is finally and definitely disposed of, we may proceed more understandingly and along more scientific lines to pursue the cause of higher civilization.

Railroad Men May Be Relied Upon to Aid Commission.

The clarifying of the railroad situation may yet take years to accomplish, for it must necessarily be a slow and careful procedure; and in the efforts of the Commission to untangle this web of misunderstanding and misdirected efforts no right-thinking railroad man, no public-spirited man, whatever may be his calling, should withhold his fullest support and his warmest encouragement. The railroads, having nothing to fear, I am sure will, as a unit, welcome and enthusiastically embrace the opportunity to work in full harmony with the Commission and for the common cause of the people, including not only patrons of railroads and railroad employes, but also the holders of railroad securities and the public generally—a happy solution which in itself will contain all that is desirable in government ownership or operation, and yet will maintain the constitutional rights of private property and preserve the spirit of industrial freedom and the incentive for individual initiative which in the past twenty-four years have wrought a stupendous wealth, regardless of all our shortcomings.

Looking into the Future.

That we are nearing a satisfactory solution of this entire railroad problem, I am convinced. The fact is clearly demonstrated by the three opinions herein cited, those of the three ex-chairmen of the Interstate Commerce Commission, each arrived at entirely independently of the others and very probably from entirely different strategic angles.

Furthermore, in stating his views before the Traffic Club of Pittsburgh less than a year ago, the Honorable Charles A. Prouty used the following language:

"No form of investment to-day is, and no form of investment in the future will be, more certain than railroad stocks and bonds. * * * * The worst that could happen to the stockholder of any of our great railway systems would be a temporary suspension of dividends, and even this could occur only under very unusual circumstances."

In view of the unanimity of opinion and the unqualified assurances emanating from an undisputed authority, the Interstate Commerce Commission, I feel confident that the reins of the situation are in careful hands and that we will yet be able to demonstrate the truth of the assertion that "the degree of civilization enjoyed by a nation IS measured by the character of its transportation facilities."

Therefore, with a full knowledge of what we are trying to do, conscious of the tremendous task before us, and the wonderful possibilities that are contingent upon the *correct* solution of the present-day railroad problem, now is not the time to lament what has happened, or what may have happened in the past, but with unwavering faith in the wisdom and integrity of our able Interstate Commerce Commissioners, generals of the greatest army that ever entered a field of conquest, let us set about to build our bridges into the future—bridges big enough to span any depression which we might encounter in the commercial conditions before us, bridges strong enough to withstand the test of prosperity which we have already sighted over the established points of the past.

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Railway Developments in the United States During 1912

By SLASON THOMPSON,
DIRECTOR, BUREAU OF RAILWAY NEWS AND STATISTICS.

THE salient features of the Railway Statistics of the United States for the year ending June 30, 1912, just issued by the Bureau of Railway News and Statistics, Chicago, is that in a year of unprecedented gross earnings the margin of safety left after paying operating expenses was relatively the smallest on record. In cold figures this is compressed in the following statement:

Gross earnings	$2,870,736,000	100.00
Expenses and taxes	2,111,071,000	73.54
Net earnings	759,665,000	26.46

The conditions of which these percentages are the irreducible epitome are thus summarized in the report:

To the railways of the United States the year 1912 has brought:

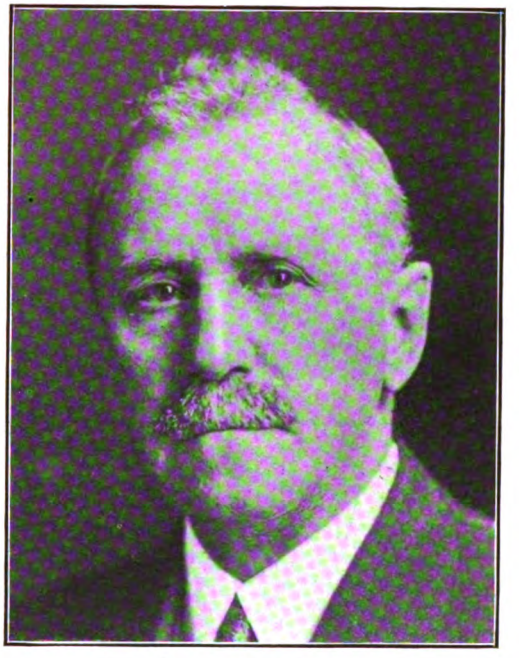
The lowest average freight receipts since 1900,
The highest wages in their history,
The multiplication of costly regulation,
The heaviest loss and damage claims on record,
The highest taxes yet levied,
The largest gross revenues received,
The largest expenses of operation paid, all resulting in
The lowest relative *net* income in 25 years.

To these might have been added the greatest mileage on record, given as 248,888 miles of line and 370,317 miles of track; the most efficient equipment on record, consisting of 62,291 locomotives, averaging nearly 80 tons without tenders; 51,306 passenger cars, and 2,243,465 freight cars of an average capacity of nearly 38 tons against only 28 tons ten years ago.

Following the report somewhat in detail, it appears that the United States has nearly 249,000 miles of railway against only 207,447 for all Europe, including the British Isles, resulting in our having 8.34 miles of line per 100 square miles of territory to Europe's 5.5 miles and one mile of line per 382 inhabitants, where Europe has 2,180. This means that we have fifty per cent more railway mileage relatively to area than Europe, and nearly six times more per capita.

The report shows that American locomotives, without tenders, average over 50 per cent heavier than German locomotives with tenders, the figures being 78.7 and 51.8 tons respectively. The average capacity of American freight cars is 37.5 tons against 13.7 tons on German railways—the largest in Europe.

The statistics of railway employes and their compensation are especially interesting. The number is given as 1,728,603, whose compensation for the year amounted to $1,268,978,000. It is a noteworthy fact that where the number of employes has increased only 3.4 per cent since 1907 their compensation has increased 15.6 per cent. From the tables it appears that the average daily compensation of all railway employes has advanced from $2.07 in 1905 to $2.44 in 1912. In the meantime the average daily pay of enginemen has increased from $4.12 to $5.02; of firemen from $2.38 to $3.03; of conductors from $3.50 to $4.20, and of other trainmen from $2.31 to $3.02. These figures are worth studying in view of pending demands for increased pay by the classes named.



SLASON THOMPSON.

Between 1900 and 1912 the ratio of the railway pay roll to gross operating revenues rose from 38.82 to 44.20, which in itself is enough to account for the shrinkage in the margin of safety between operating expenses and revenues.

In the meantime the ratio of taxes to operating revenues rose from 3.24 per cent to 4.21 per cent.

Where the average pay of American railway employes is $733 per year, that of British railway "servants" is $333; of German $388; of Austrian $277; of French $260 and of Russian $196. An English engine driver averages $11.16 per week, where the American locomotive engineer averages over $5 a day.

Tables are given showing that the pay of railway employes has increased more rapidly than relative prices of the principal articles of food, the comparisons being made with the average for the years 1890-1899, as prepared by the Bureau of Labor. In contrast with these advances, the average receipts per mile per passenger and per ton are shown to have declined, the average for the latter being 7.41 mills, which is the lowest average since 1901.

It is this decline in the average freight rate, in conjunction with the advance in the cost of labor and all materials entering into the operation of railways and the increase of nearly one per cent in the rate of interest, that prevents the railways sharing in the general prosperity. To them is shifted the burden of fetching and carrying for a progressive people of 100,000,000 at prices which yield a decreasing margin of profit. Increased and more efficient facilities are demand-

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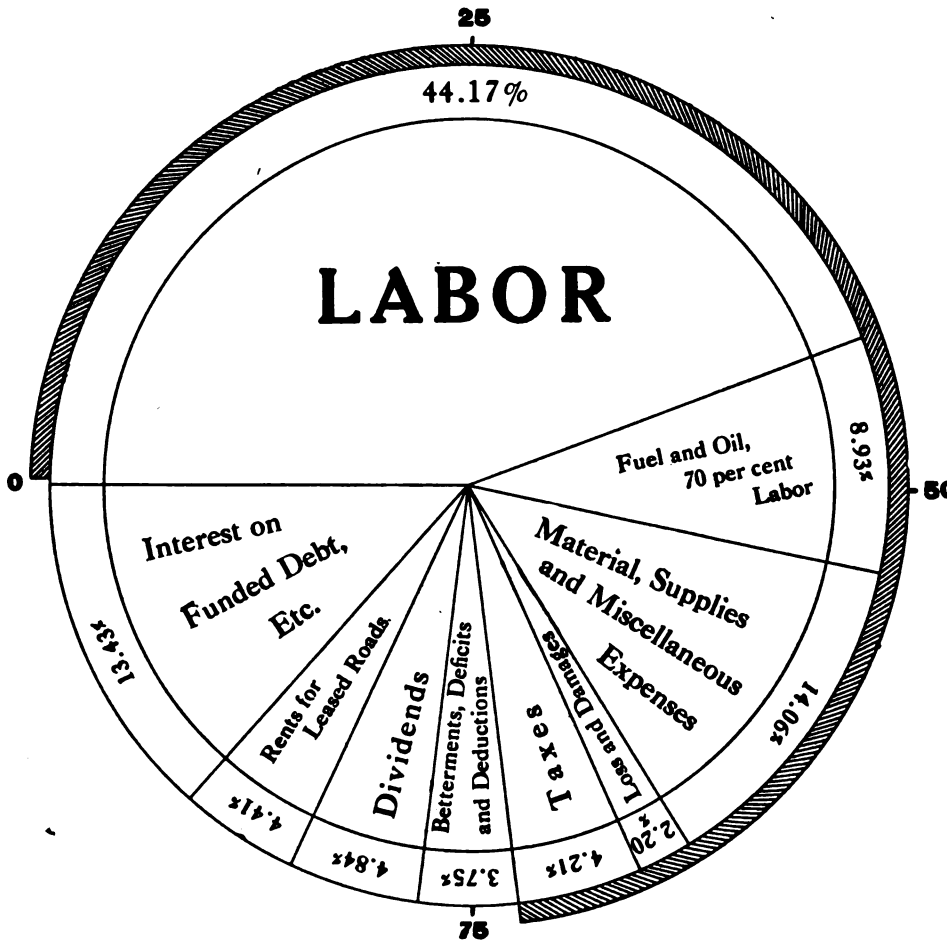
What Became of the Railway Dollar in 1912



ed while the means of providing them are being nibbled away by hostile federal and state regulation and exactions.

The net capitalization of the railways of the United States for the year 1912 is given as $14,657,545,069, equal to $61,508 per mile of line, or only $41,204 per mile of track. The gross capital represented by funded debt and stock amounted to $19,694,987,553, of which $5,037,442,484 was duplicated in railway bonds and stocks owned by the railway companies.

Figures are given showing the capitalization of European railways, that in the principal countries being:

	Per mile.
United Kingdom	$275,354
Belgium	187,787
France	143,648
Italy	126,886
Austria	117,837
Switzerland	116,692
Germany	113,326
Portugal	110,830
Russian Empire	80,902

The average for all Europe, including Asiatic Russia, is $121,453. If American railways were capitalized as high as British roads, it would take their entire revenues at present rates to pay 4¼ per cent on the investment. Although the cost of British roads originally was extravagant, over $100,000 per mile has been added to their cost since 1870 by the British practice of distributing every last penny of net revenues and charging the cost of every spike or cubic foot of additions and betterments to capital account. The difference between the present capitalization of American and European roads is a demonstration of the soundness of the American principle—a dollar for improvements to every dollar for dividends. All roads have not lived up to this principle, but those that have most nearly approached it in practice are the financially sound roads to-day.

So far as has been ascertained, only $242,145,100 new capital was invested in American railways in 1912.

The report shows that where the average receipts of American railways in 1912 were only 7.41 mills per ton mile, those of the leading European railways were—United Kingdom 23.30 mills; Germany 14.10; France 13.9; Austria 14.5;

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Sweden 22.30; Holland 13.2 and Switzerland 29.10.

In 1912 only 1.8 per cent of railway revenues were derived from carrying the mails, against 2.31 per cent ten years ago and 2.6 per cent from express. The injustice of the Government's treatment of the railways in the matter of pay for carrying the mails is demonstrated by the fact that where its own postal revenues since 1902 have increased 101.7 per cent, those of the railways for performing a more expensive service have increased only 28.8 per cent. As a matter of fact the service costs more than $25,000,000 annually more than is paid for it.

The railway bill for damages to property and injuries to persons in 1912 was $61,838,136—absorbing 2.2 per cent of the revenues, both actually and relatively the largest on record.

The Introduction to the report brings the income account of the railways down to the end of the calendar year 1912, which may be summarized as follows:

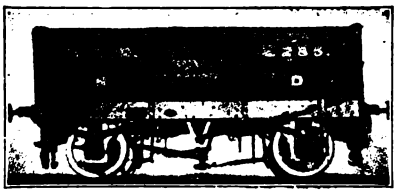
INCOME ACCOUNT CALENDAR YEAR 1912.

Operating revenues	$3,036,076,418
Operating expenses	2,092,297,214
Net operating revenue	943,779,204
Profit from outside operations	1,710,130
Net revenue	$945,489,334
Taxes	125,753,235
Net operating income	$819,736,099
Per mile of line	$3,305
Per mile of line 1911	3,157
Per mile of line 1910	3,345
Per mile of line 1909	3,460

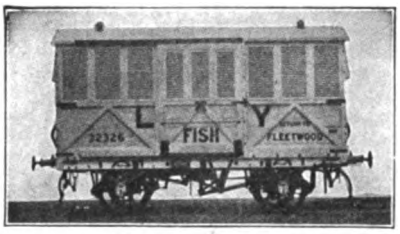
From these figures it appears that with phenomenal revenues (passing the three billion mark) and unprecedentedly favorable operating conditions during the second half of the year, the net operating income of the railways per mile of line was less than in 1910 and 1909, while the ratio of expenses and taxes to revenues was still over 73 per cent, whereas 70 per cent is the line of safety.

The Introduction also presents an analysis of the decisions of the Interstate Commerce Commission and of the finding of the Board in the Engineers' Arbitration case. During the year the Commission handed down 375 decisions of which 243, or 64 per cent, granted reparation or reductions of rates with no increases. It also entered 3,332 reparation orders "all tending to deplete railway revenues." Of the hundreds of tariffs filed advancing rates, the vast majority are held up for from 120 days to ten months and the formal decisions of the Commission show less than 50 suspensions vacated.

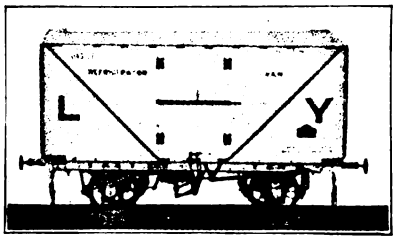
In regard to the award of the Arbitration Board, it is shown that this was not made on the merits of the case but to avoid the strike the threat of which led to the submission of the differences to arbitration. The engineers, constituting the highest paid class of railway employes, asked for more pay. They voted to strike if their demands were not acceded to, and they were given half a loaf in the form of a minimum wage of $4.25 to $5 per day equal to the average wage of the territory in which they worked despite the fact some of the roads are financially unable to pay any increased compensation.



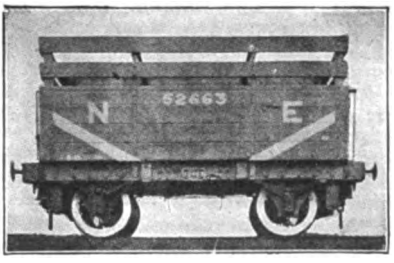
10½-TON COAL WAGON.



10-TON FISH VAN.



7-TON REFRIGERATOR VAN.



8-TON RAILED COKE WAGON.

The photographs herewith presented allow the reader to form some conception of the miniature character of British rolling stock compared with that with which he is familiar on American roads. When it is considered, for example, that the Norfolk and Western Railway has recently completed and put in service, a gondola coal car of 90 tons capacity, the tremendous economy and efficiency of the rolling stock of the railroads of this country, will be appreciated. This, it may be noted, is only one branch of a transportation service which is not equalled or even approached in any other part of the world.

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Railway Developments in Canada During 1912

THE returns for the steam railways in Canada for the year ended June 30, 1912, issued by the Comptroller of Railway Statistics, J. L. Payne, show that there were 26,727.23 miles of railway in operation, an increase of 1,330.37 miles over June 30, 1911. Of this increase over 83 per cent took place in the four Western provinces. In addition to this increase of mileage in operation there were 1,622.50 miles of line, chiefly Grand Trunk Pacific Railway, in operation, which are still regarded officially as being "under construction." In addition there are 1,752.49 miles of second track (an increase of 142.53 miles), and 6,148.92 miles of yard track and sidings (an increase of 599.39 miles), making a total of 34,629 miles of all tracks in operation, against 32,559 miles on June 30, 1911. Of the 8,825.80 miles of track dealt with as being under construction, 1,622.50 miles were in operation, 1,738.04 were completed, 3,990.76 under contract, and 1474.50 were ready to be placed under contract. The railway mileage in operation in the several provinces, as compared with June 30, 1911, was as follows:

	Miles.	Miles.
Ontario	8,545.56	8,322
Quebec	3,882.61	3,882
Manitoba	3,520.42	3,466
Saskatchewan	3,753.85	3,121
Alberta	1,896.64	1,494
British Columbia	1,854.53	1,842
New Brunswick	1,545.10	1,548
Nova Scotia	1,357.48	1,554
Prince Edward Island	269.33	269
Yukon	101.71	102
Total	26,727.23	25,400

A difference of 3.50 miles is made in New Brunswick in correction of an error in the returns of the previous year.

The total capital liability was $1,588,937,526, of which $770,450,351 represented capital stock, and $818,478,175 funded debt. This is an increase of $21,251,664 in stocks, and $38,996,661 in funded debt, a total of $60,248,325 in the year. By eliminating the mileage of Government railways and duplication in stock and bond issues the capital liability represents $50,832 a mile, a relatively low figure. The total amount paid in dividends on capital stock was $31,164,791, equal to a rate of 4.04 per cent, as compared with $30,577,740, equal to a rate of 4.08 per cent paid for the year ended June 30, 1911. Of the dividends $18,487,000 was paid on common stock, and $12,677,791 on preferred stock.

The cash aid given during the year totaled $5,892,818.34, of which $5,858,163.34 was paid by the Dominion Government, $26,115 by the provinces, and $8,500 by municipalities. The great difference in the amount paid by the Dominion Government over 1910-11, is accounted for by the payment of $4,994,416.34 paid to the Grand Trunk Pacific Railway, under the "implementing" clause of agreement guaranteeing its bond issue. These figures bring the amount paid in aid of railway construction by the Dominion Government to $154,075,235.09; by the provincial governments to $35,045,515.16, and by municipalities to $18,051,323.60. In addition land grants by the Dominion (discontinued since 1894) and the Provinces have aggregated 56,052,055 acres, and bonds guaranteeing $245,070,045 of bonds have been given by the several governments as follows:

Dominion	$91,983,553
Manitoba	20,889,660
Alberta	45,489,000
Saskatchewan	32,500,000
Ontario	7,860,000
Nova Scotia	5,022,000
British Columbia	38,946,832
New Brunswick	1,893,000
Quebec	476,000
Total	$245,070,045

An increase of $96,733,688, as compared with the amount outstanding June 30, 1911.

The earnings from all sources aggregated $219,403,753, an increase of $30,670,259, or 16.2 per cent in the year, the source of revenue being as follows:

	1910-11.	1911-12
Passengers	$50,566,894	$56,543,664
Mails	1,869,414	1,914,720
Express	4,674,135	5,294,388
Baggage, parlor cars, etc.	1,207,555	1,295,415
Freight	126,570,534	149,961,140
Station and train privileges	826,252	1,086,687
Telegraphs, rents., etc.	3,018,710	3,307,739
Total	$188,733,493	$219,403,753

The operating expenses were $150,736,540, or 68.7 per cent of the gross income. The total increase in operating expenses was $19,691,494 in the year, the distribution of the same, with the comparative figures for 1910-11, being:

	1910-11.	1911-12.
Ways and structures	$29,246,093	$31,514,098
Equipment	26,127,638	29,811,510
Traffic expenses	4,831,744	5,293,700
Transportation	66,343,269	78,969,544
General expenses	4,487,039	5,137,688
Total	$131,034,784	$150,736,540

The railways carried 41,124,181 passengers and 89,444,331 tons of freight, an increase of 4,026,463 passengers and 9,560,049 tons of freight over 1910-11. The following tables give general statistics regarding traffic:

PASSENGER TRAFFIC.

	1910-11.	1911-12.
Number of passengers	37,097,718	41,124,181
Passengers carried one mile	2,605,968,924	2,910,251,636
Passengers one mile per mile of line	102,597	108,888
Passengers per mile of line	1,460	1,539
Average passenger journey (miles)	70	71
Average number of passengers per train	60	62
Passenger train mileage.	36,985,911	40,440,393
Mixed train mileage	6,277,468	6,473,882
Earnings from ticket sales	$50,566,894	$56,543,664
Earnings from passenger service	$58,317,998	$65,048,187
Average receipts per passenger	$1.360	$1.375
Average receipts per passenger per mile (cents)	1.944	1.943

FREIGHT TRAFFIC.

	1910-11.	1911-12.
Tons hauled	79,884,282	89,444,331
Tons hauled one mile	16,048,478,295	19,558,190,527
Tons hauled one mile per mile of line	631,829	731,776
Average haul, miles	200	218
Freight train mileage	52,498,866	60,126,023
Mixed train mileage	6,277,468	6,473,882
Revenue from freight	$124,743,015	$148,030,269
Average tons per train	305	325
Average car per train	18.03	18.19
Average tons per car	16.91	17.87
Average receipts per ton per mile (cents)	.777	.757

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The freight tonnage was divided by classes as follows:

	1910-11.	1911-12.
Products of agriculture .	13,809,536	17,300,945
Products of animals ...	3,190,702	3,159,280
Products of mines	28,652,236	31,467,799
Products of forest	13,238,347	14,152,721
Manufacturers	13,573,987	16,241,081
Merchandise	2,438,089	2,711,963
Miscellaneous	4,981,385	4,410,552
Total .....Tons	79,884,282	89,444,331

Further details of earnings and operating expenses are as follows:

	1910-11.	1911-12.
Gross earnings	$188,733,494	$219,726,540
Net earnings	57,698,709	68,677,213
Gross earnings per mile.	7,430.45	8,209.94
Net earnings per mile..	2,271.60	2,569.58
Earnings per passenger.	1.363	1.375
Earnings per ton	1.561	1.655
Earnings per passenger train mile	1.348	1.390
Earnings per freight train mile	2,376	2.494
Earnings per train mile, all trains	2.103	2.174
Operating expenses	131,034,785	150,726,540
Operating expenses per mile	5,158.85	5,639.48
Cost of running trains per mile	1.460	1.493

TRAIN MILEAGE.

	1910-11.	1911-12.
Passenger trains	36,985,911	40,440,393
Freight trains	46,220,813	53,652,141
Mixed trains	6,277,468	6,473,882
Special trains	232,341	363,855
Total	89,716,533	100,930,271

FREIGHT CAR MILEAGE.

	1910-11.	1911-12.
Loaded freight cars	946,946,917	1,102,719,543
Empty freight cars	311,984,866	310,974,528
Caboose cars	47,834,318	55,692,091
Total	1,306,766,101	1,469,386,162

There were 4,484 locomotives, 4,946 passenger cars, 140,918 freight cars, and 10,466 company service cars in the service of the several companies, against 4,219 locomotives, 4,513 passenger cars, 127,158 freight cars, and 9.579 company service cars on June 30, 1911. In addition 181 locomotives and 7,593 cars were reported as being leased at June 30, 1912, and fast freight lines had 265 cars in service.

LOCOMOTIVE MILEAGE.

Freight	57,143,590
Passenger	40,944,058
Mixed	7,742,514
Switching	21,159,394
Special	411,924
Total	127,401,480

The locomotives consumed 7,783,736 tons of fuel, chiefly coal, at a cost of $24,160,823. The use of oil as a fuel is reported for the first time officially, 1,729,577 gallons being used during the year.

The returns of accidents show that 568 persons were killed and 3,780 injured, an increase of 73 in the number killed and of 451 in the number injured, as compared with 1910-11. There were 545 persons killed and 2,437 injured by the movement of trains, distributed as follows:

	Killed.	Injured.
Passengers	47	485
Employes	215	1,606
Trespassers	235	193
Non-trespassers	48	120
Postal clerks and others	..	33
Total	545	2,437

One passenger in every 872,855 was killed, and one in every 84,792 was injured, as compared with one in every 1,324,919 killed and one in every 124,487 injured in 1910-11.

The number of railway employes on June 30, 1912, was 155,901, against 141,224 on June 30, 1911, and the aggregate salaries and wages was $87,299,639, an increase of $6,937,984.

Fifteen million ties, costing $6,700,000, were used during the year; the amount paid in taxes increased from $1,792,390 to $2,200,529, and 3,544 miles of line were operated by telephone, an increase of 238 miles over that so operated in 1910-11.

A Plea for Common Sense Applied to Railroads

By WILLIAM MCCOMB.

FOR long it has been highly fashionable throughout the entire country, to criticise, berate and attack the transportation interests. In fact, within the past few years, the passport to political preferment has been through the advocacy of restrictive railway legislation.

We do not carry a brief for the railroad interests, but we do plead a return to business sanity and common sense, and to an appreciation of what the railroads have meant, now mean, and must in the future mean to the prosperity of the whole country.

We have reached a point in our thinking where we have lost the true perspective and no longer regard transportation as a part of the composite whole of our industrial and commercial life. The people of all classes and every business have come to look upon the railroads as a tremendous something whose sole aim is to abstract the largest amount of tax from the public.

No one to-day, not even the railways and their managers, would attempt to deny that the railroads themselves, in the past, had something to do with bringing this line of thought into the public mind. Reading the history of transportation, it is impossible to absolve the railways, in their early history, from blame. There were no doubt in the past abuses and injustices practiced on the people by the railway managers, and perhaps to-day, there are men identified with the railways, as there are in every line of business, who would take unjust advantage, and who have no commercial conscience, but it is safe to say that men of this type are no more in the majority in the railroad world than in any other line of activity. Men of this kind have, and always will be found everywhere. No one can afford to become pessimistic and condemn the entire business world because of these men.

Measured in the light of history, power transportation is yet in its swaddling clothes, and in America, the land beyond all other of magnificent

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distances, community development necessarily has depended so much on railway construction that the very speed of its growth prevented symmetrical development and the establishment of usages that come in the course of time to all occupation.

In the light and life of the hour we are prone to forget the important part transportation has played in the development of this country, and, usually, we do forget the part it must yet play. America's ninety odd millions of population is the direct product of our stupendous railway building. Without the men of hardihood and courage, who, with prophetic vision, pictured the wealth, wonder and growth of the nation to-day, and who brought the fruitation of that vision through their money, strength and genius, this result would not have been possible and the vast resources of our nation's wealth in agriculture, mines, manufacturing, and attendant commerce, would not have been. Yet with it all we stand to-day at the dawn of a to-morrow, holding as bright promise as that of yesterday, and there is as great a future for the higher development of transportation, not alone in the wild reaches of this country, but in every other state, as there was twenty-five years ago.

Many of the abuses of railroading were the quite natural consequences of the rapid development that has taken place in this nation. Mistakes were made consequent upon thoughtless, reckless building, the duplication of lines, the building into partially settled territory, in the hope that development might follow there, with the same rapidity that took place in more favored sections. As a consequence, the wild scramble for business, obtained by any method, in order to supply lines builded ahead of the demand or duplicated, was but a repetition of conditions in every other class of business. The hope for profits in every line of manufacture has caused unwarranted competition, with the consequence of unwarranted prices that have spelled bankruptcy to thousands.

We have, however, in thinking of railroads, classified them by themselves, set them apart, and pretended that they were not subject to the same economic laws as other business, and unfortunately our regulatory legislation, while beneficial in the main, has been drawn with that spirit in mind.

The correct view of a railroad is that it is a manufacturing plant, that its right of way, terminals and tracks are its factory, its motive power and rolling stock, its tools and machinery, its raw material is the commerce coming to it, and its product is the transportation furnished. This is literally true, as much as a bushel of potatoes is the product of the farm or the steel rail the product of the steel mill, yet to the moment there has been no legislation passed based upon this idea.

We have declared, by our acts, if not by our words, that railroads were not producing a product that was subject to the law of supply and demand, but rather have we said that the railroads are public servants, in which we have a proprietary interest, by reason of their necessity and our dependencies upon them, and in exchange for the fiction of eminent domain, we demand a supervisory direction of their affairs that they may supply us at all times the largest amount of service for the lowest recompense insuring freedom from the sheriff's office.

Railroads can only be built with money. This money can only be obtained in the beginning through voluntary capitalization of stock and bonds, and for improvements and extensions through earnings or additions to capital. If through earnings, then the rates charged for the transportation, the product of the rails and cars, must be large enough to offer a fair return. If through capital enlargement, then the conditions of the railroad business must be such that it will promise sure and adequate returns to the investor, free from the harrowing of agitators.

If we apply this test to the state and interstate railway legislation do we find to-day any consistent course having been followed to insure this end? The statute books and court decisions answer the question in no uncertain terms. Rather has our legislation been destructive than constructive. Rather has its aim been to regulate in a paternalistic manner for the patron to-day, than to make possible the development of the transportation business of to-morrow. We are standing still in railway building, and the development of railway facilities. Regulation has resulted in restriction, and when the demand has come for increase in facilities, or the building of new lines for the development of new territories, the treasuries of the roads are empty and the uncertainty of profits and the unkind attitude of the public make the task of selling securities difficult, if not impossible.

By our legislation predicated on this protecting theory only as applied against railways, we have killed the goose that laid the golden egg, and the pocketbooks of those that opened so freely in the past to purchase railway securities, have been closed. Transportation to-day is the only line of business that cannot take advantage of a higher price for its products when the demand is greatest, and if those that cry loudest for railway legislation, would themselves be subject to the same limitation, they would howl the loudest. If when potatoes were scarcest the farmer could charge no more than when they were plenty, and the cotton spinner no more for his cloth when the demand was greatest, and the supply least, nor the steel manufacturer increase his price in a barren market, a trade revolution would be precipitated that would rock the nation to its foundation. Yet these same potato growers, cotton spinners and steel manufacturers, who have lived and are living and prospering by reason of this very law, demand that transportation be regulated in this way.

When the demand for transportation is greatest the railroad can charge no more than when the demand for transportation is light, nor can they charge less when the demand is light. Yet when it is heavy there is a decrease in earnings. The very nature of the business makes it so, depending as it does to so great an extent on the manual or labor element and when the physical capacity of the railway plant is taxed to its highest, the efficiency of the man factor is lowered, with its accompaniment of attendant losses incident to lowered human efficiency.

The ordinary business interests undisturbed by regulatory legislation makes during fat years earnings for a surplus to carry through the lean ones, or it may expend a part of the earnings in increased machinery, or factory equipment that may lay dormant and idle until prosperous times. This cannot be with the railroads. We demand from them the highest capacity and greatest efficiency at the lowered level cost at

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all times. If through inability, caused by excessive regulations and consequent curtailment of expenses, they are unable to respond promptly, and we are occasioned inconveniences or loss of profits through inadequate transportation, we berate them soundly and condemn them utterly, and proceed with due speed to the legislature or congress to fasten some other restriction upon them.

What the legislators of this country need in dealing with railroads, is less passion and prejudice, and a little more first study of economics, and the production of some legislation that will tend to return some of the confidence of the investors of this country in the securities of railways to the end that the development of this nation and every part of it shall proceed accelerated and not diminueted.

The conditions of congestion that faces the railroads of this country to-day was brought about through inability of the railroads to continue construction and provide themselves with the facilities to handle business, and this condition comes to a very great degree through the lack of confidence of investors and the railroads' inability to earn a surplus.

The Awards of the Firemen's Wage Arbitration Board

THE following is the full text of the awards made by the Erdman Arbitration Board in the settlement of the Firemen's Wage Controversy:

"The railroads involved in this concerted arbitration compromise practically all that part of the United States east of the Mississippi and north of the Ohio and Potomac rivers. The trackage of these railroads is approximately 70,000 miles of main line, being something more than one fourth of the entire trackage of the United States. These railroads represent practically 40 per cent of the total capitalization for all railroads in the United States; they carried about 47 per cent of the ton miles and about 43 per cent of the passenger miles of all railroads of the United States.

"The firemen employed on these railroads number in the neighborhood of 31,000 for the year 1912, and the wages for the year 1912 was approximately $29,000,000. These figures indicate, with some degree of certainty and emphasis, the magnitude of the problem and the far-reaching character of the controversies submitted for the arbitrament of this Board. Reference must be had to the three printed and bound volumes of evidence taken on the stand, comprising more than two thousand (2,000) pages, and four (4) volumes of printed exhibits, comprising perhaps as many more pages in the aggregate, and the exhaustive briefs of counsel, in order to form a due estimate of the comprehensive and difficult task undertaken, the conclusions of which by the Board are now stated.

"After due deliberation and consideration of all the evidence, exhibits, arguments and briefs of counsel representing the respective interests, the Board has reached a conclusion in respect of the demands of the firemen for increased rates of pay and for improved conditions of service, and make the awards as follows upon all the matters contained in the articles of submission, that is to say,

WE AWARD

"Article 1.—That ten hours or less, or one hundred miles or less, shall constitute a day's work in all classes of service, except as otherwise specified. The time for which firemen will be paid shall begin at the time he is required to report for duty, and end when the engine is delivered at the point designated.

"Article 2.—The following rates of wages per day shall be the minimum rates paid in all classes of service on all railroads parties to this arbitration:

(a) PASSENGER SERVICE.

Weights of locomotives in pounds on drivers:	
Less than 80,000 pounds	$2 45
80,000 to 100,000 pounds	2 50
100,000 to 140,000 pounds	2 60
140,000 to 170,000 pounds	2 70
170,000 to 200,000 pounds	2 85
200,000 to 250,000 pounds	3 00
250,000 to 300,000 pounds	3 20
300,000 to 350,000 pounds	3 40
All engines over 350,000 pounds on drivers	3 60
Mallet engines regardless of weight on drivers	4 00

FREIGHT SERVICE.

Less than 80,000 pounds	$2 75
80,000 to 100,000 pounds	2 85
100,000 to 140,000 pounds	3 00
140,000 to 170,000 pounds	3 10
170,000 to 200,000 pounds	3 20
200,000 to 250,000 pounds	3 30
250,000 to 300,000 pounds	3 55
All engines over 300,000 pounds on drivers	4 00
Mallet engines regardless of weight on drivers	4 00
Where two firemen are employed on a locomotive as a result of the application of Article 6 hereinafter the rates of pay to each fireman shall be as follows:	
Weight on drivers, 100,000 up to 250,000 pounds	2 75
Weight on drivers over 250,000 pounds	3 00

(b) SWITCHING SERVICE.

Switch engine firemen on locomotives weighing less than 140,000 pounds on drivers, per day of ten (10) hours or less	2 50
Switch engine firemen on engines, weighing 140,000 pounds or over on drivers, per day of ten (10) hours or less (excluding Mallets $4 00)	2 60

(c) HOSTLERS.

Hostlers, per day of ten (10) hours or less	2 40
If hostlers are employed in handling engines between passenger stations, and around houses or yards, or on main tracks they will be paid, per day of ten (10) hours or less	3 25
If men are employed to assist hostlers in handling engines between passenger stations and round houses or yards, or on main tracks, they will be paid per day of ten (10) hours or less	2 50

(d) HELPER ON ELECTRIC LOCOMOTIVE.

The term "helper" will be understood to mean the second man employed on electric locomotives, and he shall receive in passenger service, per day of ten (10) hours, or less, one hundred (100) miles or less	2 50
In through freight per day of ten (10) hours or less, one hundred (100) miles or less	2 80
In switching service, per day of ten (10) hours or less	2 50

All working conditions applicable to steam locomotive firemen in steam service will apply to helpers in electric service.

(e) Firemen on locomotives in pusher and helper service, mine runs, work, wreck, belt line and transfer

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service, and all other unclassified service will be paid through freight rates according to the class of engine.

(f) Firemen in local freight service will be paid fifteen (15) cents in addition to through freight rates according to class of engine.

"(g) For the purpose of officially classifying the locomotive, each railroad, party to this arbitration, will keep bulletins posted at all terminals showing accurately the weight on drivers of all engines in its service.

"Article 3.—(a) Overtime in all classes of service, except passenger, will be paid for pro rata on the minute basis. Except as otherwise specified ten (10) hours, or one hundred (100) miles will be the basis for computing overtime. Miles and hours will not be counted together; when miles exceed hours, miles will be allowed, and when hours exceed miles, hours will be allowed.

"(b) Overtime in passenger service (except suburban service) will be paid at the rate of thirty (30) cents per hour on the basis of twenty (20) miles an hour, computed on the minute basis. Five (5) hours or less, one hundred (100) miles or less, to constitute a day's work.

"(c) On short turn around runs, no single one of which exceeds eighty (80) miles, including suburban service, overtime shall be paid for all time actually on duty, or held for duty, in excess of eight (8) hours (computed on each run from the time required to report for duty to end of that run) within twelve (12) consecutive hours; and also for all time in excess of twelve (12) consecutive hours, computed continuously from the time first required to report to the final release at the end of the last run. Time shall be counted as continuous service in all cases where the interval of release from duty at any point does not exceed one hour.

"Article 4.—No initial terminal delay is allowed beyond that involved in the rule that pay shall begin in all cases at the time fireman is required to report for duty, but final terminal delay after the lapse of one hour will be paid for at the end of the trip, at the overtime rate, according to the class of engine, on the minute basis. For freight service final terminal delay shall be computed from the time the engine reaches the designated main track switch connecting with the yard track. For passenger service final terminal delay shall be computed from the time the train reaches the terminal station. If road overtime has commenced terminal overtime shall be computed to the point of final release.

"Article 5.—Firemen in pool freight and in unassigned service held at other than home terminal, will be paid continuous time for all time so held after the expiration of eighteen (18) hours from time relieved from previous duty, at the rate per hour paid him for the last service performed. If held fourteen (14) hours after the expiration of the first twenty-eight (28) hour period, he will be paid continuous time for the next succeeding ten (10) hours, or until the end of the twenty-four (24) hour period, and similarly for each twenty-four (24) hour period thereafter. Should a fireman be called for duty after pay begins, his time will be computed continuously.

"Article 6.—When a second fireman is deemed necessary on any engine or assistant is deemed necessary on any engine where one fireman is employed, the matter will be taken up with the proper officials by the firemen's committee. Failing to reach a settlement the matter shall be referred to an adjustment commission, to be composed of five (5) persons, two (2) of whom are to chosen by the railroad company, two (2) by the firemen's committee, and one (1) to be seelcted by the four (4) thus chosen, who shall be the chairman of the commission. Should the four (4) men fail to agree upon the fifth, then three (3) days after the last of the four (4) is selected, the fifth man shall be named by the presiding judge of the United States Commerce Court. If, for any reason, the selection of the fifth man cannot be made by the presiding judge of said court, he shall be named by the United States District Judge of the district in which the controversy may have arisen. All expenses incurred in connection with the settlement of such matters shall be borne equally by the two (2) parties to the controversy.

"Article 7.—Firemen will be relieved of cleaning engines. Lubricators will be filled, headlight, markers and other lamps cared for (including filling but not lighting), and all supplies placed on engines at points where round house or shop force are maintained. The firemen shall not be relieved of responsibility of knowing that engines for which they are called are properly equipped for service.

"Article 8.—Firemen tied up between terminals on account of the hours of service law, will be paid continuous time from initial point to tie up point. When they resume duty on a continuous trip they will be paid from the tie up point to terminal on the following basis: for fifty miles or less, or five hours or less, fifty miles pay; for more than fifty miles up to one hundred miles, or over five hours, and up to ten hours, one hundred miles pay; over one hundred miles, or over ten hours, at schedule rates. This provision does not permit the running of firemen through terminal or around other firemen at terminals, unless such practice is permitted under the pay schedule.

"Article 9.—The earnings of firemen in any class of service shall not be diminished by the provisions of this award; and if the rates that were higher or the conditions that were better antecedent to the award are necessary to guarantee this requirement they shall be maintained. Neither shall the earnings of the firemen in any class of service be increased above what the higher rates of pay and the conditions that were better antecedent hereto guaranteed him by a combination of the rates herein established with the conditions of service antecedent hereto, or vice versa.

"It is not intended that any of the terms or provisions of this award shall debar committees from taking up for adjustment with the management of the respective railroads any questions or matters not specifically covered herein.

"Article 10.—This award shall take effect at the time and in the manner provided by the Act of Congress entitled 'An Act concerning carriers engaged in interstate commerce and their employes, approved June 1, 1898. And all parties to this arbitration having stipulated in writing, and incorporated in the record an agreement, extending the time within which the award may be made and filed, from the second (2nd) day of April, 1913, to and including the twenty-third (23rd) day of April, 1913, the arbitrators now, on this twenty-third (23rd) day of April, 1913, signed this award without dissent in any particular to any of its provisions by anyone of them, and have required the secretary to attest the same.

"Signed WILLIAM L. CHAMBERS,
WILLIAM W. ATTERBURY,
ALBERT PHILIPS."

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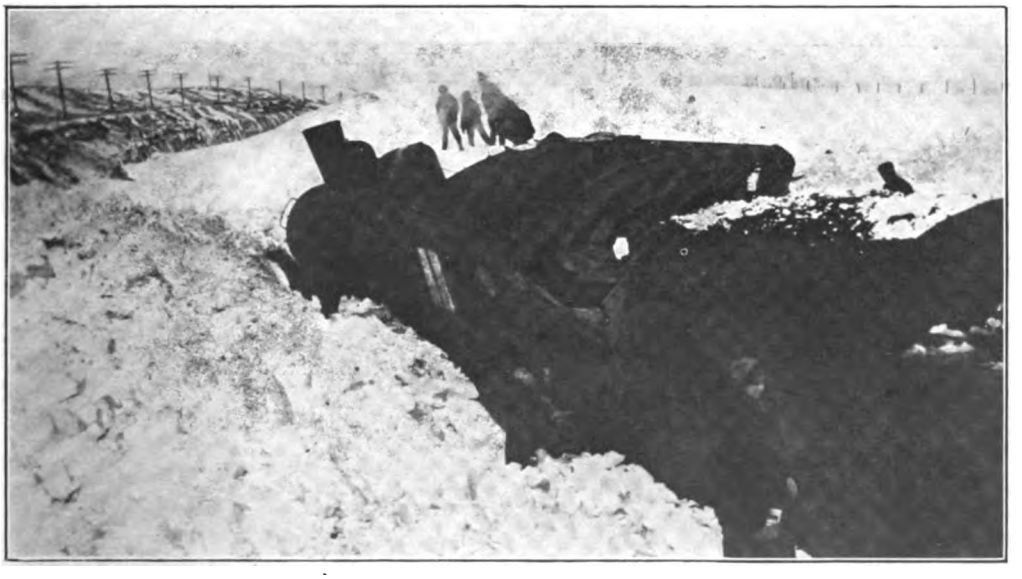
Difficulties of Winter Railway Operations in the Prairie Country of the Northwest

THE great snow drifts in the northern Rockies are probably more troublesome and costly than the banks of sand and snow which sometimes impede the trains in the prairie country of the Northwestern States, but they are far from being so freakish. Whenever a high wind accompanies a heavy snow there are large areas left bare, while in low places, and especially in deep track cuts, the snow and sand will often pile from twenty-five to thirty feet deep.

Recently, when there were signs of spring in fully half of the country, just such a storm swept over eastern Colorado. Near Akron, on the Chicago, Burlington and Quincy Railroad, the drifts were twenty feet deep. One train tried to plow its way through a big snowbank, but it could not make headway until after a large quantity of the snow and sand had been shoveled away. In some instances, engines were cut loose from stranded trains to clear the track. The accompanying photographs illustrate the character of the difficulties encountered.

A Wrecking Train at Work in a Snowdrift on the Northwestern Prairies. Note Absence of Snow on the Levels.



Engine Endeavoring to Clear Track After a Portion of the Snow Had Been Removed by Shoveling.

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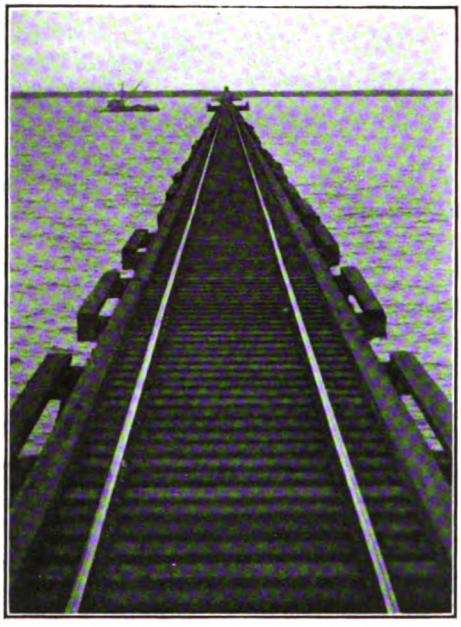
The Albemarle Sound Trestle



FIVE MILE NORFOLK AND SOUTHERN TRESTLE OVER ALBEMARLE SOUND, NORTH CAROLINA.

THE accompanying photograph, taken from the rear platform of a Norfolk and Southern train while crossing Albemarle Sound, North Carolina, shows one of the longest railroad bridges in the world over navigable waters.

By the use of this bridge, the handling capacity of the road has been increased at least 1,000 per cent per day over the old method of transporting freight and passengers by steamer. Freight trains of thirty cars now cross in about fifty minutes, while to transfer by the old system would have taken twelve hours. Passenger trains cross in twenty-five minutes.

The bridge is recognized as being one of the most important engineering feats undertaken in eastern North Carolina, and means much for the development of that rich agricultural section. Its length is 28,000 feet, about five and one-third miles. Roughly speaking, 4,000,000 feet of lumber, 1,000 carloads of cypress spiles, 250 cars of steel, and a train load of spikes and bolts have been used in its construction.

The spiles were huge, the longest being 95 feet, and none shorter than 70 feet. They were driven into the bed of the sound forty to sixty feet. The deck of the bridge is over thirteen feet above high water.

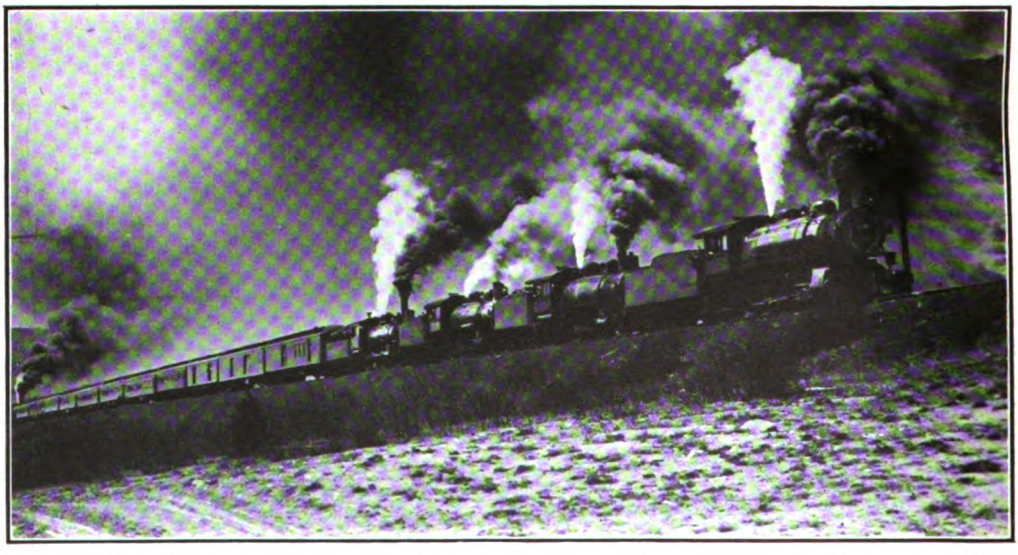
There are two large spans, and five smaller ones for gas boats, etc.

At the Scherzer roller lift draw there is 140 feet of open space, and at the smaller draw a clearance of 35 feet each side of the swing.

Improvement Work on the Denver and Rio Grande

ONE of the most important pieces of railroad work that is being done in the West this year is the reconstruction of the Denver and Rio Grande Railway grade between Soldier Summit and Tucker, Utah. According to the contract, the work is to be completed August 1st, 1913. The job will cost $1,500,000.

The Soldier Summit grade, where the Denver and Rio Grande double track crosses the Wasatch Mountains in Utah, is one of the heaviest



DENVER AND RIO GRANDE PASSENGER TRAIN CLIMBING SOLDIER SUMMIT, WASATCH MOUNTAINS, UTAH.

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hauls in the Western states. The old line between Soldier Summit and Tucker is seven miles long, the grade being 4 per cent, or 211 feet to the mile.

The new piece of road will have one 255-foot tunnel. Numerous concrete arches will be built instead of bridges. When finished, the line between Soldier Summit and Tucker will be fifteen instead of seven miles long, but the grade will be reduced from 4 per cent to 2 per cent, or 105½ feet to the mile. Jordan Narrows gravel will be used in ballasting, and 90-pound steel rails will be laid.

The cost of this improvement is enormous, but it is more than justified by the reduction in curvature and grade. The increase in mileage and the decrease in grade may be said to balance fairly even, while the railroad will profit by reduction of curve and elimination of continual bridge expense.

The reconstruction of this piece of road was necessary because of the enormous traffic at that point. Heavy coke and coal shipments go from the Utah mines to Salt Lake, and the Montana and Nevada smelters, each day. The cost of maintaining "helpers" for the many freight and passenger trains has always been a big item.

Prospective increase in freight business after the opening of the Panama Canal, and passenger business during the Panama-Pacific Exposition probably exerted considerable influence in the matter of bringing about this commendable improvement.

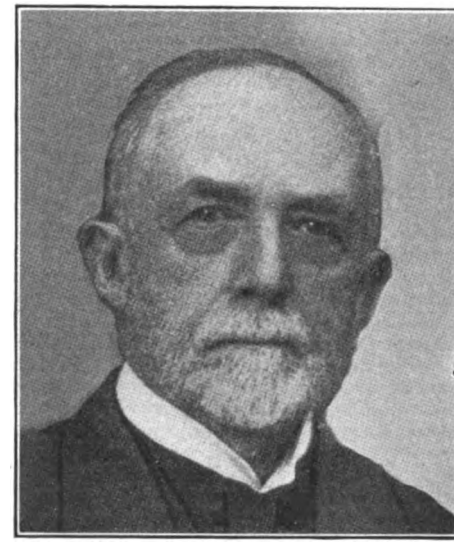
Personal

A. T. Hardin.

A. T. HARDIN, who was on April 1st, elected vice-president of the New York Central and Hudson River Railroad, entered railroad service in 1882, as telegraph operator on the Richmond and Danville Railroad, with which road he stayed until 1894 when he procured a position in the maintenance of way department of the Southern Railway. In 1898, he was appointed supervisor and division engineer of the New York Central and Hudson River Railroad, and in September, 1899, was made engineer of track of the same road. In 1893, he became engineer of maintenance of way and in 1905 assistant to general manager, becoming assistant general manager in 1906. This position he held until April 15, 1912, when he was elected assistant vice-president, holding this position until his recent election to the vice-presidency.

William Mahl.

WILLIAM MAHL, vice-president and comptroller of the Southern Pacific Company at New York, voluntarily retired on April 7th, under the pension rules of the company, after 53 years' continuous railroad service, 31 of which were in the service of the Southern Pacific Company. Mr. Mahl was born in Carlsruhe, Baden, December 19, 1843, and came to America with his parents in 1852. In 1860 he was entered as an apprentice in the shops of the Louisville & Nashville. In four years he became successively a machinist, a draftsman and chief clerk in the mechanical department. From 1864 to 1872 he was auditor and purchasing agent of the Louisville, Cincinnati & Lexington. For a few years he served under Colonel Thomas A. Scott, as auditor, purchasing agent and financial agent of the Texas & Pacific. Soon after the panic of 1873, he returned to the Louisville, Cincinnati & Lexington, becoming its general superintendent. In February, 1882, Mr. Huntington called him to New York, where he served successively as general agent, comptroller and assistant to the president of the Chesapeake & Ohio and the Southern Pacific and the various collateral railways, steamship lines and other large interests of Mr. Huntington. After Mr. Huntington's death Mr. Harriman extended Mr. Mahl's functions so as to cover the entire Union Pacific and Southern Pacific systems. He was vice-president and comptroller of both systems from October, 1909, until the Union Pacific and the Southern Pacific were separated under an order of the Supreme Court; and on February 6, 1913, resigned from the Union Pacific.



WILLIAM MAHL.

J. J. Bernet.

J. J. BERNET has been appointed vice-president of the Lake Shore & Michigan Southern, Lake Erie & Western, Cleveland, Cincinnati, Chicago & St. Louis, Michigan Central, Peoria & Eastern, Cincinnati Northern, Toledo & Ohio Central, Zanesville & Western, Chicago, Indiana & Southern and the Indiana Harbor Belt, in charge of operation, maintenance and construction, with headquarters at Chicago. Mr. Bernet was born February 9, 1868, at Brant, Erie County, New York; educated in the public schools of Buffalo, and began railway work in 1889 as telegraph operator for the Lake Shore & Michigan Southern. He was advanced to train

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J. J. BERNET.

despatcher in March, 1895, was trainmaster of the Eastern Division from April, 1901, to March, 1903, when he became assistant superintendent of that division. On February 1, 1905, he was made superintendent of the same division, and in November of that year, he was promoted to assistant general superintendent of that road, which position he retained until October 1, 1906. He was then advanced to the general superintendency, with headquarters at Cleveland, Ohio. Mr. Bernet subsequently, on June 1, 1911, was made assistant to vice-president of the New York Central lines west of Buffalo, and was appointed assistant vice-president of the same lines on April 15, 1912. He now becomes vice-president of those roads.

J. W. Taylor.

J. W. TAYLOR, recently appointed assistant to the president of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, began his service as messenger in the office of the St. Paul's car department at Milwaukee, Wis., in 1888. He subsequently filled several positions in the mechanical department until 1904. He then was promoted to general storekeeper, and five years later, in 1909, he was made a division superintendent. The following year, in 1910, Mr. Taylor became assistant to the comptroller, which position he held until March 15th, of this year, when he received the appointment of assistant to President Earling.

Clark B. Ferry.

CLARK B. FERRY, recently elected vice-president of the Chicago, Milwaukee & St. Paul, with headquarters at New York, was born on May 18, 1859, at Bethel, Conn. From 1868 to 1873 he was a student at the Trinity Institute, Tivoli, N. Y., and in 1875 he graduated from Essex Hall Institute, Orange, N. J. On June 30th, of the same year, he began railway work as a clerk in the financial office

CLARK B. FERRY.

of the Chicago, Milwaukee & St. Paul, and has been in the continuous service of that road ever since. In January, 1883, he was elected assistant secretary, and on April 8th, was elected also vice-president of the same road.

Lewis Lukes.

LEWIS LUKES, recently appointed assistant to the president of the Canadian Northern Railway, and to MacKenzie, Mann & Company, with headquarters at Toronto, Canada, was born at Yorks Mills, Ontario, November 14, 1854, and after receiving a common and high school education, entered railway service in 1878 as general clerk at Collingwood, Ontario, to the contractors who were at that time engaged in the construction of the Hamilton and Northwestern Railway. In 1879 he became pay clerk and bookkeeper for the same construction company at St. Ignace, Michigan, who were at that time engaged in the construction of the Mackinaw and Marquette Railway. In 1881 he became general clerk at the

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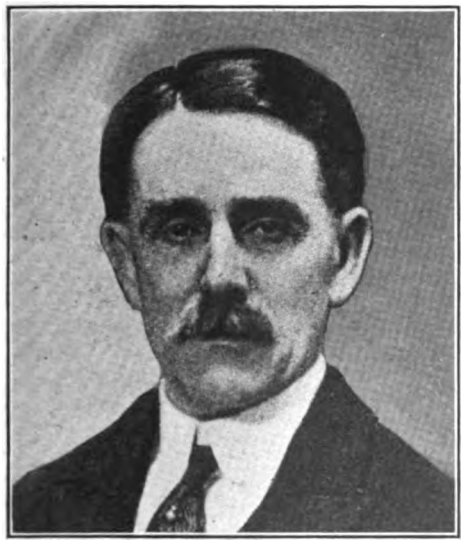
LEWIS LUKES.

head office Toronto, during the construction of the Ontario and Quebec Railway, and in 1883, was made cashier at the end of track on the Canadian Pacific Railway's main line from Medicine Hat to Revelstoke. In 1886 he became general representative of the contractor in the construction of the Canadian Pacific Railway from Montreal to St. Johns, and from 1890 to 1897, he was engaged in the railway contracting business. In the latter year, he became associated with Mackenzie, Mann and Company as manager of construction, and in March of the present year. was made assistant to the president of this company and of the Canadian Northern Railway.



C. A. Morse.

CHARLES A. MORSE, who has resigned as chief engineer of the Atchison, Topeka & Santa Fe System to become chief engineer of the Rock Island Lines, was born at Bangor, Me., January 1, 1859. He was educated at the University of Maine and in 1880, entered railway service with the Chicago, Burlington & Quincy R. R., and as chainman, instrument and office man, remaining with that road until its completion in 1884. After service with the Mexican Central Ry. as division engineer, Mr. Morse was again with the Burlington for a year and a half. He accepted a position as transitman with the Atchison, Topeka & Santa Fe Ry., in January, 1886. After serving as division engineer and resident engineer in July, 1901, he was made assistant to the chief engineer at Topeka, Kas. From February, 1902, until March, 1903, he was principal assistant engineer at La Junta, Colo., and from that date until July of the same year division engineer at Topeka. He was then appointed acting chief engineer and served in that capacity until his appointment as assistant chief engineer, July 8, 1904. From September 1, 1905, until his appointment to the office of chief engineer Mr. Morse was acting chief engineer of the Coast Lines of the Santa Fe System.

C. F. W. Felt.

C. F. W. Felt, who, on April 1st, became chief engineer of the Atchison, Topeka & Santa Fe System, with headquarters at Chicago, was born April 29. 1864, at Salem, Mass. He was graduated from the Massachusetts Agricultural College in 1886, and began railway work in September of that year with the Atchison, Topeka & Santa Fe Railway. From September, 1886, to October, 1887, he was rodman and later until February, 1888, was bridge engineer. He was then for three months with the Denver & Rio Grande as levelman; from August, 1888, to April, 1889, instrument man for the Arizona & Southeastern, and from the latter date to February, 1890, transitman on the Topolobampo line in Mexico. In April, 1890, Mr. Felt was made resident engineer of the Northern Division of the Gulf, Colorado & Santa Fe at Cleburne, Tex., and in July, 1892, he went to the Rio Grande & Southern as office engineer, returning to the Gulf, Colorado & Santa Fe in February, 1893, as division engineer.

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Three months later he was transferred to Galveston, Tex., as resident engineer, and in September, 1896, he was promoted to chief engineer of the Gulf lines of the Santa Fe at Galveston, which position he held for thirteen years, being advanced to chief engineer of the Eastern and Western lines, with office at Topeka, Kan., in November, 1909. This position he held until his recent appointment.

John B. Berry.

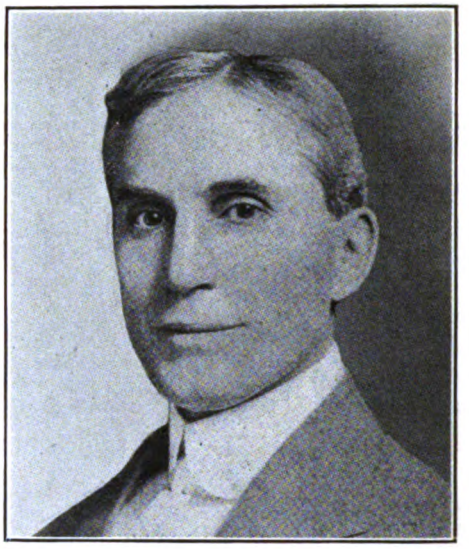
JOHN B. BERRY, heretofore chief engineer of the Rock Island Lines, is to be assistant to the president. Mr. Berry entered the employment of the Chicago & North-

JOHN B. BERRY.

western Ry. in 1878, and was engaged in various capacities in the engineering department until 1893. He then went to Omaha, Neb., as chief engineer of the Fremont, Elkhorn & Missouri Valley R. R. He remained in that position five years. In 1898 he was appointed chief engineer of the Union Pacific R. R., where he remained seven years. In 1905 he was appointed chief engineer of the Rock Island Lines, which position he has occupied to the present time. Mr. Berry's work in the reconstruction of the Union Pacific Railway forms an important part of the railway engineering history of the country.

W. E. Morse.

W. E. MORSE has been appointed general manager of the Denver, Northwestern & Pacific Railway. Mr. Morse was born September 27, 1864, and entered the railway service December, 1881, with the Chicago & Northwestern Ry., as telegraph operator. After holding various positions in the station service, in 1884 he was made train dispatcher. From 1887 until 1897 he served as train dispatcher and assistant superintendent and from 1897 to 1906 as superintendent of various districts of the Northwestern. He was appointed general superintendent in 1906, serving in that capacity until October, 1910, when he was ap-



W. E. MORSE.

pointed assistant general manager. Mr. Morse's health compelled his resignation in March, of last year.

H. W. MacKenzie.

HENRY W. MACKENZIE, who was recently appointed comptroller of the Seaboard Air Line Railway, with headquarters at Portsmouth, Virginia, was born on December 30, 1876, in Hampton County, South Carolina. He was educated in the common schools and entered railway service on May 1, 1891, with the Florida Central and Peninsular Railroad. He filled various clerkships with this company until July, 1900, on which date that road became part of the Seaboard Air Line Railway, and Mr. MacKenzie was made bookkeeper for the comptroller. He occupied this

H. W. MACKENZIE.

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position until February 1, 1902, when he became general bookkeeper. In 1906, he was made assistant to the comptroller and on February 19, 1913, he was appointed to his present position.

C. J. Jones.

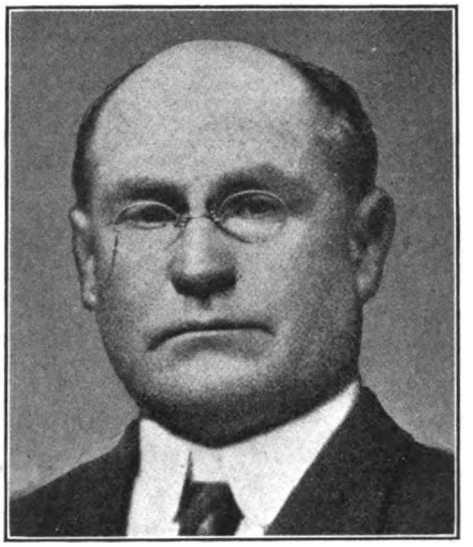
C. J. Jones, who, on April 1st, became general freight agent of the Southern Pacific, with headquarters at San Francisco, Cal., began railway work in 1880 with the Burlington, Cedar Rapids & Northern at Muscatine, Iowa, as a telegraph operator and clerk in the local freight office, after completing a high school course. He went to the Arizona & New Mexico in 1883 as trainmaster and agent at Lordsburg, N. M., and entered the service of the Southern Pacific in 1887. He was employed by that company as local agent and trainmaster at various places until 1901, when he was appointed district freight and passenger agent at Sacramento, Cal. Two years later he was made freight agent at the San Francisco local station, and in 1904 he was promoted to assistant general freight agent.

C. J. JONES.

He left the Southern Pacific in 1910 to accept the position of traffic manager of the Alaska Steamship Company and the Copper River & Northwestern, with headquarters at Seattle, Wash., and now returns to the Southern Pacific as general freight agent.

E. Richards.

E. RICHARDS, recently appointed superintendent of the St. Louis Southwestern Ry. at Pine Bluff, Ark., entered railway service as telegrapher with the Chicago & Alton R. R. in 1881. After similar service with the Wabash R. R. National Ry., of Mexico, and St. Louis Southwestern lines, Mr. Richards served as train dispatcher, chief train dispatcher and trainmaster of the Cotton Belt; 1899 and 1900, general manager of the Louisiana & Arkansas Ry.; 1901, train dispatcher, Chicago & Northwestern Ry., at Boone, Ia.; 1901, chief train dispatcher, Missouri, Oklahoma & Gulf Ry.; 1902 to 1905, chief train dispatcher, St. Louis & Southwestern Ry., of Texas; 1905 and 1906, trainmaster, Louisiana Ry. & Navigation Co., Shreveport, La. In 1907 he returned to the Cotton Belt as assistant superintendent at Pine Bluff, Ark., was transferred to the Fort Worth Division as superintendent in October, 1912, and remained at that post until his recent appointment, March 27th, as superintendent at Pine Bluff.



E. RICHARDS.

Charles Forrester.

CHARLES FORRESTER, who has been appointed superintendent of the Stratford Division of the Grand Trunk, with headquarters at Stratford, Ont., was born on March 5, 1876, at Wanstead and was educated in the public school of his native town and at the high school at Petrolea. He began railway work on July 15, 1891, with the Grand Trunk, and has been in the continuous service of that road ever since.

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Obituary

George T. Nicholson.

ON Sunday, March 30th, there passed away in Los Angeles, George T. Nicholson, vice-president of the Santa Fe, in charge of traffic.

George T. Nicholson was born in Belvidere, N. C., on July 1, 1856. He was educated at Earlham College, Richmond, Ind., and at the University of Kansas. At Lawrence he married Julia Watson, who, with one daughter, survives him.

He entered Santa Fe service in 1882 as a clerk in the general passenger and ticket office, since which he has been consecutively rate clerk, chief rate clerk, chief clerk, assistant general passenger and ticket agent and general passenger agent. From February 1, 1897, to May 1, 1898, he was general passenger agent of the St. Louis & San Francisco Railway, but was recalled by the Santa Fe to become passenger traffic manager. From October 4, 1905, until his death he was vice-president in charge of all traffic matters.

Opportunity opens the door wide for those entitled to enter. It wasn't magic or luck or "pull" that made Mr. Nicholson's life so brim full of success. He earned all he got; that type of individual rarely gets all he earns, because it is difficult fully to reward the work that is done for work's sake. The answer is evident. He made it a point to keep in training for the job higher up.

Mr. Nicholson studied hard; he took infinite pains; he didn't watch the clock; he dug things out for himself, and he was trustworthy, a man of unquestioned integrity. Brains, plus hard work, plus character, is a combination bound to win.

The following resolution was passed by the directors of the Santa Fe in session in New York on April 1st:

WHEREAS, George T. Nicholson, vice-president of this company, departed this life at Los Angeles, Cal., on Sunday, March 30th, 1913, after a brief illness and following a surgical operation; therefore, be it

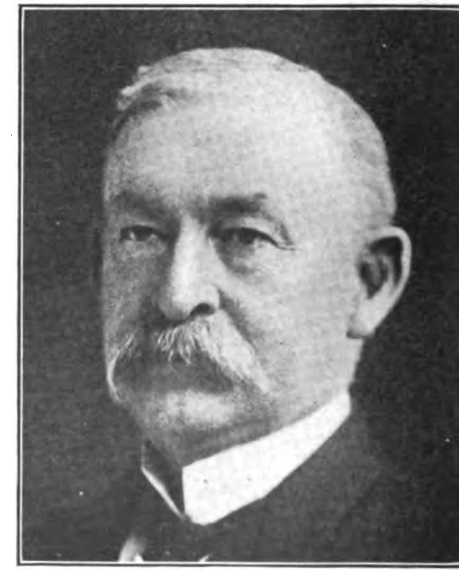
RESOLVED, That we hereby express our most profound sense of bereavement and our deepest regret. We appreciate, as fully as possible, the great work done by Mr. Nicholson for this company in his thirty-one years of arduous official service. We appreciate also his rare qualities as a gentleman, a citizen and a friend. At all times gentle and kindly and generous, he won not only the highest respect of his business associates, but, as well, the affectionate regard of all who knew him. He was at once a leader in his profession and a simple, unostentatious and lovable man, loyal to his friends and faithful at all times in all things to all his obligations.

Charles E. Pugh.

CHARLES E. PUGH, former first vice-president of the Pennsylvania Railroad Company, died at Old Point Comfort, Va., on April 8th.

Mr. Pugh retired from the service of the Pennsylvania Railroad Company on March 1, 1911, after having served it fifty-one years and five months, and having risen from station agent at Newport, Pa., to the second highest office in the organization of the railroad.

His record with the company was indicative of its policy of starting its employes at the lowest round of the ladder and advancing them step by step in any regular department. Born at Unionville, Chester County, Pennsylvania, on February 25, 1841, all of Mr. Pugh's activities were confined to Pennsylvania. His early education was received in the district school of Unionville, while later on he attended the State Normal School at Millersville, Lancaster County.



CHARLES E. PUGH.

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Mr. Pugh entered the service of the Pennsylvania Railroad Company as agent at Newport, Pa., on October 1, 1859. To familiarize himself with all the details in the practice and theory attending the running of trains, he entered the train service and served as a passenger conductor for a period of six months. In 1864 he was appointed train dispatcher of the Philadelphia Division; on August 1, 1870, general agent for Philadelphia; on April 1, 1879, general superintendent, Pennsylvania Railroad Division; on October 1, 1882, general manager; on March 1, 1893, third vice-president, and on February 10, 1897, second vice-president.

Mr. Pugh, at the time of his retirement, was first vice-president of the Pennsylvania Railroad, Northern Central Railway, Philadelphia, Baltimore & Washington Railroad, and the West Jersey & Seashore Railroad, and was an officer in some fifty other corporations affiliated with the Pennsylvania Railroad System.

Peter S. Archibald, who was chief engineer of the Intercolonial Railway from March, 1878 to 1898, died on March 16, at his home in Moncton, N. B. He was born on March 18, 1848, at Truro, N. S., and began railway work in July, 1867, in the engineering department of the Intercolonial Railway, and held various positions in that department until his promotion to chief engineer. He resigned from that position in 1898, to become a consulting engineer.

Caspar Buhrer, formerly roadmaster of the Lake Shore & Michigan Southern at Sandusky, Ohio, and later superintendent of the tie and timber-treating plant of that road near Toledo, died at his home in the latter city on March 23rd, aged 58 years. Mr. Buhrer was connected with the Lake Shore some 35 years and had been roadmaster about 30 years. He retired about two years ago owing to ill health. Mr. Buhrer was the inventor of the Carnegie steel tie and one or two reinforced concrete ties.

Emil E. Kuersteiner, formerly bridge engineer of the Louisville & Nashville R. R., died at his home in Louisville, Ky., following a long illness, aged 55. He was born in New Orleans, La., and educated in Cincinnati, Ohio, and Zurich, Switzerland. In 1881 he returned to America and entered the service of the Cincinnati Southern Ry., as assistant engineer. He became connected with the Louisville & Nashville in 1898.

John R. McCord, formerly traveling passenger agent of the Cincinnati, Hamilton & Dayton, died on April 2nd, at Washington, D. C., at the age of 59.

Richard R. Metheany, secretary and auditor of the Grand Rapids & Indiana, died suddenly at Grand Rapids, Mich., on April 7th, aged 58 years. Mr. Metheany was born at Lima, Ohio, February 4, 1855, and had been in railway service since 1870, when he began as clerk in the auditor's office of the Grand Rapids & Indiana. From 1877 to October 1, 1895, he was chief clerk in the same office, and on the latter date was made secretary and auditor.

E. A. Peck, superintendent of the St. Louis Southwestern, with headquarters at Pine Bluff, Ark., was found dead near Hot Springs, Ark., on March 20th. It is stated that he committed suicide owing to continued ill health. Mr. Peck was 61 years old and had been superintendent at Pine Bluff since June, 1901. From June, 1893, to April, 1901, he was general superintendent of the St. Louis, Iron Mountain & Southern, and previous to December, 1892, he had been with the Cleveland, Cincinnati, Chicago & St. Louis for some years as an assistant general superintendent and general superintendent.

J. W. Petheram, formerly from October, 1893, to the latter part of 1909, chief engineer of the Missouri, Kansas & Texas Railway of Texas, died on March 26th at his home in Dallas, Tex., aged 70 years. Mr. Petheram was born in Largo, Scotland, and was educated at Madras College at St. Andrews, Scotland. He entered railway service in June, 1873, as resident engineer of the Credit Valley Railway of Canada, and from February, 1875, to August, 1879, was assistant engineer of the same road. From April, 1881, to January, 1884, he was successively chief engineer of the Georgian Bay & Wellington and assistant engineer of the Chicago & West Michigan, and was then until January, 1888, chief engineer of the latter road. Subsequently to October, 1893, he was general roadmaster of the Missouri, Kansas & Texas of Texas, and was made chief engineer on the latter date, which position he held for about sixteen years, when he sustained a stroke of paralysis, from which he never fully recovered.

Howard W. Rogers, traveling freight agent of the Illinois Central, with headquarters at Kansas City, Mo., died in that city on March 14th, aged 30 years.

George A. Rump, commercial freight agent of the Wabash R. R. at Cincinnati, Ohio, was drowned at Hamilton, Ohio, during the recent floods. Mr. Rump with two others were attempting to cross the river in a motor boat and on nearing the shore the craft was wrecked. His companions were rescued, but he was lost.

Reuben F. Smith, president of the Cleveland & Pittsburgh, with office in Cleveland, Ohio, died in the latter city March 11th, aged 92 years. He had been connected with the Cleveland & Pittsburgh since 1855, when he was made paymaster. He became auditor six years later, and in 1869 was chosen vice-president. Later, under lease of the property to the Pennsylvania Railroad, he was appointed assistant general manager of the Cleveland & Pittsburgh division of the Pennsylvania Lines West of Pittsburgh. Subsequently he was elected president of the Cleveland & Pittsburgh Railroad.

P. J. Tapp, commercial agent of the Southern, at Kansas City, Mo., died suddenly in that city on March 20th, aged 50 years.

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Financial

J. Pierpont Morgan.

THE death of Mr. J. Pierpont Morgan overshadowed all other financial events during the past month. Obituaries of Mr. Morgan have repeatedly referred to him as a great constructive influence. This, in our opinion, is inaccurate. Mr. Morgan's work throughout his business career has been one of reconstruction, rebuilding and conservation. He was no pioneer, his interest was in the preservation and improvement of existing corporations, and what has been usually regarded as his greatest achievement—the United States Steel Corporation—was conceived in a desire to bring a number of potentially hostile interests in the steel trade into a working agreement.

We regard Mr. Morgan's greatest work to be the large number of railway reorganizations in which he figured. J. P. Morgan & Co., have been active in the financial development of nearly every important railroad in the country. Of companies which his house reorganized there come readily to mind the Reading, the Erie, the Baltimore & Ohio, the Chesapeake & Ohio, the Hocking Valley, the Richmond & West Point Terminal and the Northern Pacific. At an earlier date, acting in the interest of the New York Central, he acquired the West Shore for that company. These reorganizations were carried through on sound principles, although on drastic lines. Without exception they have justified the wisdom of the plan upon which they were founded.

Mr. Morgan's services to the railroad were not confined to financial reorganization. He was a pioneer in the field of complete publicity of railroad accounts. His advent to a position of control in the affairs of a railroad was signalized by the furnishing of complete information, not only in annual statements, but in monthly, and often in weekly returns. He was also responsible, more than any other man, for the establishment of harmonious relations among independent railway companies whose heads have learned in the course of years, largely as a result of his constant insistance, to avoid destructive and ruinous competition, and even though not bound together by organic corporate relations, to work in harmony for the common good.

Of Mr. Morgan's work in the field of banking proper this is not the place to speak. In all his work the secret of his enormous influence was the implicit confidence which all men had, not merely in his judgment, but also, and primarily, in his absolute integrity. The high reputation which he acquired forty years ago for direct and honest dealing was never marred by a single misstep. In his long life of constant activity in large financial affairs, not once was he accused of a questionable transaction. At the time of his death he possessed, in a higher degree than any other man in public or private life, in this or any other country, the absolute confidence and trust of the business world.

Improvement in Financial Situation.

THE financial situation has improved. The leading explanation for the marked relaxation of tension in the money market is the settlement of the Balkan War. While peace has not yet formally concluded, it is assured, and with the definite conclusion of peace it is believed that at least $500,000,000 of funds, which have been hoarded by investors and bankers, will be released for investment. During the stringency caused by the threatening political situation in Europe, New York bankers were forced to send nearly $50,000,000 of gold abroad. The general disposition to hoard and retrench was responsible for the heavy sales of American securities which proved more remarkable than foreign issues, and the decline in railroad securities carried down the entire market. During the past month the stock market in New York has shown much improvement. The surplus reserve of the New York banks has held steady between $12,000,000 and $14,000,000 and rates for both call and time money have been reduced. The Bank of England, the best indication of relaxation in the monetary situation, on April 17th, reduced its rate of discount from five per cent, at which figure it had stood since October 17th, to 4½ per cent. That the market has stood up so well is proof that the financial position of the country is inherently strong. In spite of numerous laws introduced to harass as well as regulate capital, in spite of a complete change in administration, in spite of the threat of tariff revision, continued unrest in Mexico, disastrous floods in the Middle West, the danger of foreign war, and the death of Mr. Morgan, the investment markets have shown a surprising amount of resistance to the natural effect of liquidation. With the improvement in the general situation which is now in progress, there is every reason to expect that the market will respond.

Decline in the Rate of Return on Railway Investments.

ACCORDING to figures compiled by a special representative of the Delaware & Hudson and made public in the recent report of President Loree, the rate of return on the capital invested in American railways is steadily declining. This is a new point and one which possesses the deepest interest for the public. Owing to the rapid growth in operating expenses there was available for interest and dividends in 1911, $9,000,000 less than in 1907, although the investment in road and equipment was $2,044,416,617 greater than in 1907. The railroads evidently received no return on the money which they have put into their property since 1907. The rate of return on the total investment, in no year since 1907, equalled the 5.8 per cent earned in that year.

This unpromising situation, looking at the railroads as a whole, is aggravated by the policies of certain States. To the natural hesitation of the investor to put his money into a business whose profits are stationary and declining in relation to the capital employed, is added the efforts of certain States which have not yet learned by experience to let the railroads alone. A recent illustration of this policy is the Public Utilities Bill which is now before the Colorado Legislature. Mr. William E. Green, president of the Denver, Laramee & Northwestern Railroad,

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believes that no more railroads will be built in Colorado if the Public Utilities Bill is enacted in its present form. He bases this conclusion on the experience of Texas. "There has not been an independent road started and completed in Texas for the last fifteen years and I attribute that fact to the laws of the State restricting the issuance of railroad securities. Denver would to-day be without a through line to the Gulf of Mexico except for the fact that the Colorado & Southern and the Rock Island, two systems whose greatest mileage is outside of Texas, jointly undertook the construction of the Trinity and Brazos Valley Railroad."

President Green said that the Texas Commission allowed the new company only ten per cent margin for the sale of its securities. The bonds sold for 92 which left only two per cent to cover commissions, cost of seasoning the roadbed and other expenses incidental to the inauguration of efficient service on a new line. "Investors will not put money into a project where only a ten per cent margin is allowed to cover these costs and the incidental risks which accompany the transaction. The margin should be at least twenty-five per cent. The Trinity and Brazos Valley would never have been built if the two older systems had not undertaken the work."

President Green calls attention here to the consequence of restrictive railroad legislation which is probably not in the minds of those who advocate it. The effect of such laws is to confine the building of new railroads to systems with established credit. It is impossible to secure money for new railroad construction on such a narrow margin of discount as Public Service Commissions are disposed to allow.

Railway Financing.

WHILE the general business situation shows every sign of strength and resistency, the investment market is not encouraging. The reception given the St. Paul issue has been, to put it mildly, unenthusiastic. When the issue was first announced the following comment appeared in the Wall Street Journal:

"Applications for participation in the underwriting syndicate for the new $30,000,000 St. Paul general mortgage 4½ per cent bonds have resulted in a healthy over subscription for the issue. All bankers are willing to take a chance on a savings bank issue of this class that is to be brought out on a 4½ per cent basis. A strong syndicate has been formed, and it is expected in some quarters that the bonds will be put away with institutions and investors in a few days' time and the success of the sale will stimulate the market generally."

And then, a few days later, we have their comment in the same column:

"When it was published after two days of the offering that only one-half of the issue had been taken, bankers began to modify their views, but they still all maintained that the issue, with its price four points below other savings bank issues, would go to an over subscription before the closing of the books on the fifth day.

"For that reason the announcement that the issue failed to stimulate enough buying to absorb more than four-fifths of the total comes as a great surprise.——A strong banking syndicate reaching nearly all the investment pockets of the country is not able under present conditions to put away with the 'ultimate consumer' in five days $30,000,000 of the highest grade bonds even when they return nearly one-fourth of one per cent more than other such bonds."

Since this note appeared a considerable additional amount of bonds have been sold but the demand was not strong and the price has shown a tendency to lag.

This poor success of the St. Paul bonds is interpreted to signify a speedy readjustment in the prices of other savings bank bonds of this class. Atchison generals selling on a 4.22 basis, New York Central at 4.19, and Reading general 4½ at 4.17, it is unreasonable to expect that the cool reception given both the St. Paul and the Baltimore and Ohio, which also went mostly to the bankers, will fail to exert a depressing influence throughout the savings bank list.

Such a development, however, should not occasion suspense. It will only continue a movement which has been in progress for some time. The Wall Street Journals average for March of the prices of 25 representative bonds was below 87. This is eleven points below the maximum figures of 1906, and only five points below the low level of the 1907 panic. The most rapid decline, moreover, since 1907, has been during the last two months.

We refuse to accept the pessimistic conclusions as to the future of the bond market, which are naturally drawn from these figures. In our opinion, based on considerable inquiry among bond houses, the decline in these representative savings bank bonds, represent nothing more than a long deferred readjustment of prices, to bring these bonds to the proper position. The investor demands five per cent; that is the substance of the situation, and railroad bonds are in the march to meet his demand. The monopoly of the conservative investors' favor, which railroads have long enjoyed, has been broken. While railroad bonds will always sell at higher prices than competing public utility and industrial securities, the difference in quotation will not be so great as in the past.

The Policy of the Pennsylvania.

THIS leads us naturally to comment upon the policy of the Pennsylvania in adding ten per cent by subscription to its enormous stock issue. With the addition of this allotment the capital stock of the Pennsylvania will fall just short of $500,000,000. It has always been recognized among bankers that the finances of this company have been managed by men who have shown singular ability in forcasting financial tendencies. For many years, the Pennsylvania has relied upon its stockholders to furnish its capital and has increased its debt at a much slower rate. At the end of their last calendar year, the capital stock of the Pennsylvania was more than double its funded debt. The policy of favoring stockholders has resulted in the building up of a margin of value above the bonds which would enable the company in case of need, to utilize its credit on very favorable terms. In times past, the Pennsylvania could have obtained money readily at four per cent. It sold six per cent stock instead and it maintained its dividend. To-day its directors, with the enor-

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mous stock interest to draw upon, can undertake the most extensive program of improvements, with utter indifference to the course of bond prices.

The decline in railroad bonds, will, we believe, result in a general return to the old-fashioned methods of finance, so well exemplified by the Pennsylvania, by which the owners of a company furnish the money for the expansion of its business.

New Issues During First Quarter of 1913.

READJUSTMENT in bond values is having its effect in deterring new issues. During the first quarter of 1913, according to New York "Journal of Commerce," the total of new securities announced by railroad and industrial corporations showed a decline of $139,322,000 as compared with last year. For almost the whole of this decrease the railroads were responsible. When we express this decline in percentage here—18 per cent upon the $750,892,000 of the first quarter of last year, we can realize that with $611,570,000 of new securities issued, the investment market is still capable of furnishing an enormous sum of money for the continuous service of industrial expansion. General business, about equally divided in its dependence upon the crops and the supply of new capital to maintain its volume, shows little signs of slacking.

The Tariff and Business.

APPREHENSION is felt in some quarters over the probable consequences of what Herman Sieckles ably termed the "Tariff for Politics" as distinct from the tariff for either revenue or protection. In the textile industry, the hesitation is most marked and the distribution trades show some falling off. Other basic industries, however, continue to expand. The iron and steel industry is especially prosperous. The crop outlook is even better than last year, showing indeed, practically no unfavorable indications. If the Democratic administration can be "assimilated" by the spirit of business progress, if President Wilson and his advisors can be brought by the logic of circumstances to think less of changing the basis of division and more of increasing the amount to be divided, there is nothing in the path of a rapid advance of the United States to an era of greater prosperity than the people ever before enjoyed.

Railway Business for February.

RAILWAY business in the United States for February was slightly greater than for the corresponding month of 1912. This is indicated in statistics compiled by the Bureau of Railway Economics from the reports of steam railways, operating over ninety per cent of the mileage of the country, to the Interstate Commerce Commission.

The returns for February average as follows per mile of line: Total operating revenues per mile amounted to $1,015, which is 5.3 per cent greater than in February, 1912; operating expenses per mile amounted to $756, or 6.4 per cent greater than in 1912; net operating revenue per mile amounted to $259, or 2.4 per cent greater than in 1912. Taxes amounted to $46 per mile, an increase of 5.7 per cent. Operating income, which is what is available for rentals, interest on bonds, appropriations for betterments, improvements, and new construction, and for dividends, after the payment of operating expenses and taxes, amounted in February to $212 per mile. This represents an increase over February 1912, of less than four dollars a mile, or 1.8 per cent.

As February contained twenty-nine days in 1912, and but twenty-eight days in 1913, the returns for this month of the current year, other things equal, would be somewhat less than for February, 1912. A comparison of operating income on the basis of income per mile per day eliminates the effect of the extra day in 1912. On this basis operating income per mile per day averaged $7.58 in February, 1913; $7.19 in 1912, and $6.49 in 1911.

The railway returns here presented are for the month ending February 28th, and do not reflect the recent impairment of railway operating conditions on account of floods in the Middle West and the South. It will not be possible to trace the effect of these impaired conditions in the railway record until the returns for March, April and later months are available.

Interest in railway earnings always centers in these roads which have figured in the news of recent days because of realized or threatened misfortune. This month's record of such companies is encouraging. Take Missouri Pacific, for example; this company under the improved management which it now enjoys, has made a remarkable recent improvement. Gross earnings for eight months to February 28th, were $5,494,000 ahead of the same period of last year, and net earnings $3,253,000 ahead, this too, after the expenditure of $1,261,000 additional on maintenance. In place of a deficit to April 7th, of last year of $1,200,000, indications are that this year will show a surplus of $1,800,000 over charges. Flood damage will not amount, it is believed, to more than $300,000, the amount of the flood loss sustained last year.

The Wabash is another Gould property, although Mr. George Gould announces that he has personally been out of the company for several years, which shows great improvement. March earnings of this company increased over eleven per cent and February earnings nearly twelve per cent. Flood damage, which it was first feared would be severe, will not amount to over $150,000.

St. Paul, while showing a slight loss in net earnings in February, has every reason to be satisfied with the year's showing, up to this time. On March 1, 1912, net operating income was about $950,000 behind the figures of 1911. This year, operating income for eight months shows an increase over last year of $7,829,479.

Rock Island in the West and Erie in the East are companies whose financial situation has not in 1912, been especially promising. Each of these companies shows a marked gain in net earnings over last year. Rock Island lines gained $1,300,000 net after the deduction of taxes in the eight months ending February 28th. At the same time, maintenance expenses were increased $1,800,000 to the evident benefit of the property.

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Operation

Progress of the Safety First Movement.

THE "Safety First" movement continues to attract an enormous amount of attention on the part of railway officials and employes. As we have previously noted, the original enthusiastic and rather unorganized efforts to this end are giving way to a calm and more scientific method of approach. The work already done is being critically analyzed in order to determine in what respects it may be improved or augmented. The result is that while there has been no marked or radical development during the month under review, a large amount of very useful work has been done.

Upon motion of Commissioner Cram, the New York Public Service Commission, First District, ordered a hearing at which representatives of the large railroad companies centering in New York City, and the manufacturers and distributors of electric current were represented. The engineering staff of the New York Central, Pennsylvania, the Edison Companies of New York and Brooklyn and the Interborough Rapid Transit Company, besides many others, were present.

A code of thirty-one rules drawn up by the electrical engineer for the Public Service Commission was submitted. The point was made by some of the representatives present that these rules might not apply fairly in all cases. After considerable discussion the Commission requested the representatives present to submit a series of rules applicable to their respective cases at a future meeting, the date of which has not yet been set.

One of the most important developments of the month has been the issuance of a call by Mr. A. T. Smallen, safety supervisor of the St. Paul System, for a meeting of safety supervisors, to be held in Chicago on April 21st. Thirty-four railroads have signified their intention of being represented. The purpose of the meeting is to discuss the advisability of forming a national organization for the promotion and extension of this movement.

It is becoming increasingly apparent that the problem which must now be solved in this movement is to get the men to put into practice the principles which they so readily accept. Experience has demonstrated that hardly a railway employe will fail to appreciate theoretically the advantages to himself, the company and his associates from this work. The difficulty is to maintain his interest to the point where it will affect his actions and thus make the movement not a theory but a condition. This is one of the problems which will be discussed at the Chicago meeting, and it is hoped that from the discussion it will be possible to evolve plans by which this condition can be successfully handled.

Numerous experiments are being tried to effect this result. The General Safety Agent of the New York Central Lines, for example, has issued to the members of the safety committees of his road a circular letter asking each member on all of the committees to personally see and canvass the matter with three employes in his own branch of the service, and to point out, if possible, in what respect the three individuals handled their work in a way which endangered them or their fellow employes. The success of this experiment will be watched with interest. In some quarters there is a feeling that perhaps the matter of "dont's" has been overdone in the safety campaign, and that not sufficient attention has been paid to constructive work or positive suggestions. It is also coming to be recognized that in the long run the real success of the safety first movement will lie in the care and thoroughness with which new employes who come into the service from time to time are trained. It is as easy to teach a man the proper way to handle his new task as a slipshod and careless way. It is believed that if men can from the outset be impressed with the necessity for care, and the absolute adherence to well devised methods of handling their work, that the corrective part of the movement will be very much reduced in the course of a few years.

Mr. R. C. Richards, of the North-Western System, has made the telling point that the greatest measure of success in this work can only be achieved if it does not appear to be disciplinary in its nature; in other words, the movement must come from among the men themselves rather than as a disciplinary measure by the owners. What discipline there must be in the long run, as against persistent offenders, should be dealt out, if possible, after mature judgment has been passed by representatives of the men. Through co-operative efforts of this character it is believed the final solution of the question will come.

Mr. Richards has made public some comparisons showing the results of the work on his system. Comparing the year ending June 30th, 1910, with that ending June 30th, 1912, the reduction in killed and injured trainmen, switchmen, trackmen and bridgemen averages roughly from 40 per cent to 50 per cent. Even the casualities to stationmen have been very materially reduced. The only lines in which there has been an increase in those killed and injured is in the case of car repairers and unclassified employes. The total number of killed in 1910 was 353, while in 1912 the number was 249. The number of injured in these years was respectively 10,163 and 7,115.

The Whisky Habit and Safety.

IT is the opinion of Mr. C. W. Egan, general claim agent of the Baltimore and Ohio, that the whisky habit is perhaps the greatest evil with which the railroad has to deal, and that it lies at the root of more accidents than any other single factor. The Pennsylvania system evidently subscribes to the same doctrine, for it is announced that a new system of inspection is to be inaugurated to prevent employes who have taken spirituous liquors from going to work. Inspectors have been appointed whose duty it shall be to discover whether the men have been drinking whisky, by detecting it on their breath, or in any other way which may be available. Those who persistently offend are to be discharged.

Innovation in Safety Work.

THE Chicago and Alton has prepared a number of maxims, which have been printed in the form of a bulletin, and distributed to the employes. Among the most catchy of these mottoes are the following:

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"One accident occurs every fifteen minutes of each day of each year.

"It is the men and not the stockholders, officers or foremen who are being killed or injured.

"We want to stop making cripples, widows and orphans.

"A minute of judgment is sometimes worth a day of energy.

"Do not think because an accident has not happened it won't happen.

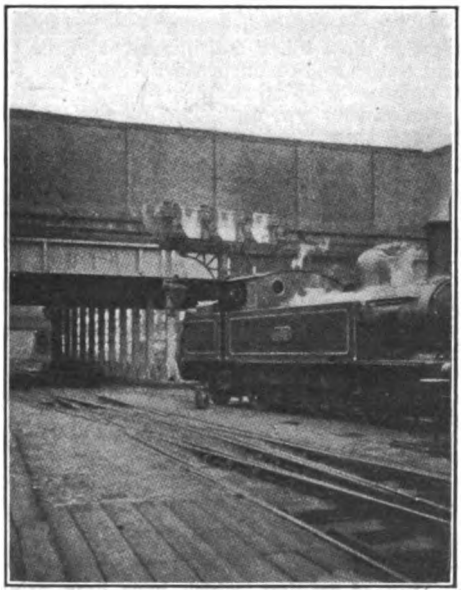
"You have no right to take chances. The other fellow may have to take the consequences."

The Illinois Central is endeavoring, in connection with its safety movement to break up the practice of its passengers of alighting from trains at points where regular stops are not made. To this end bulletins are being distributed among its passengers, which state in part that "The practice of getting on and off trains at unauthorized localities is dangerous. While you personally may be mentally and physically endowed to protect yourself from personal injury, there are others not so well equipped. They are apt to imitate you. Please use the regular station facilities."

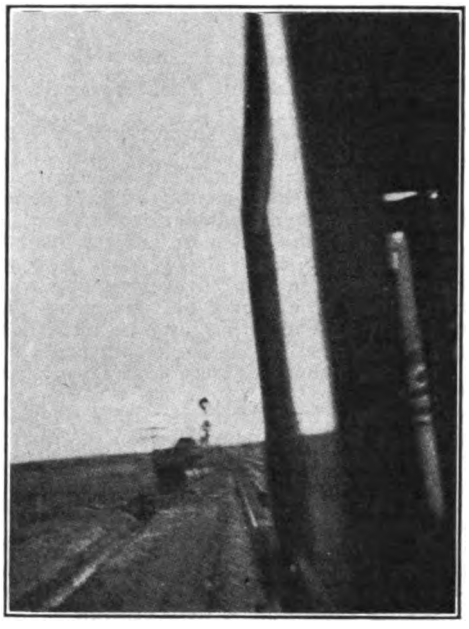
Railway Signals and Visual Requirements of Employes.

MR. NELSON M. BLACK, of Milwaukee, Wisconsin, is the author of a most interesting article appearing in *The Safety Heating and Lighting News* on the application of ophthalmology to the railway field—or, in other words, safeguards which should be taken to insure proper vision on the part of railway employes.

Dr. Black points out that with modern high speed equipment it is necessary to determine and read a signal half a mile before it is reached, in order that a train may be brought to a stop. That this is no easy task is, of course, apparent to anyone who has given it consideration, for the ordinary semaphore arm is but four feet long and six inches wide, while the roundel of the lamp at night is six inches in diameter. It requires almost perfect vision to discern signals under all sorts of weather conditions under such circumstances, even when the observer is stationary. The engineman, however, does not have the advantage which the stationary observer possesses, for he is rushing at the signal at a high rate of speed, and it is a peculiar fact, graphically illustrated in the accompanying cut, that an engine, when in motion, produces a blurring effect, even to the almost instantaneous eye of the camera. This renders the correct reading of a signal a matter of great difficulty, and when with this is combined the many other factors which handicap the engineer, such as escaping steam from injectors, leaky valves, connections, piston rods or air pumps, the dust from passing trains or highway crossings, the reflection of snow, bodies of water, green foliage, and the glare of the sun when directly ahead, it is readily seen that only those possessing the clearest sort of vision are fit for such work. At night the glare of the furnace door, the effects of opposing headlights or of arc lights in yards, upon bridges or at other points near the right of way, offer equal difficulties.



SPECIAL BACKGROUND INSTALLED ON ENGLISH RAILWAYS FOR SIGNALS WHERE NATURAL BACKGROUND IS POOR.



BLURRING EFFECT PRODUCED BY MOTION OF ENGINE WHEN TRAVELING AT A HIGH RATE OF SPEED.

Dr. Black next proceeds to analyze the advantages and disadvantages of glasses for protection to employes, and as a means of increasing their vision. The objections ordinarily stated are, that the glasses become smeared and dirty from grease and dust or smoke; that they become misty from fog, rain or snow, or when coming from the cold into the warm air of the cab; that they are dangerous through the liability of being broken; that while theoretically satisfactory in the testing room, they do not give the same clearness of vision at very long range, and finally, that from a legal aspect, in case of accident, they are disadvantageous to the railroad company. In Dr.

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Black's opinion none of these objections is of grave import. When looking through dirty glasses the vision is impaired for objects at close range, but at distances of 100 feet to 1½ miles they offer little obstruction to the sight. The objection to mist is chiefly disadvantageous as regards the handling of cab mechanism by the engineman. Experience has demonstrated that the danger from a possible breakage of glasses is almost nothing.

As regards the theoretical versus practical efficiency of glasses, he concludes that while there may be some basis for this objection, yet the employe with naturally defective vision can see much clearer under service conditions with glasses than without them. Dr. Black does not agree with the objection that vision is better without correcting lenses in dusk or darkness. This phenomenon is only apparent, he says, in attempting to define details of objects which must be seen by reflected light, and does not apply to those seen by transmitted light or self-luminous objects as the case with signals.

As regards the legal objections to having enginemen wear glasses, Dr. Black quotes with approval the statement of A. E. Manchester, superintendent of motive power of the St. Paul System, that this objection can only be overcome by conventions of oculists, establishing the fact that it is better for a man to wear glasses than to have moderately deficient eyesight.

Dr. Black offered the valuable suggestion that railroads could with profit furnish backgrounds for signals likely to be misread because of bad surroundings. This policy is followed extensively by English roads and by an increasing number of American railroads.

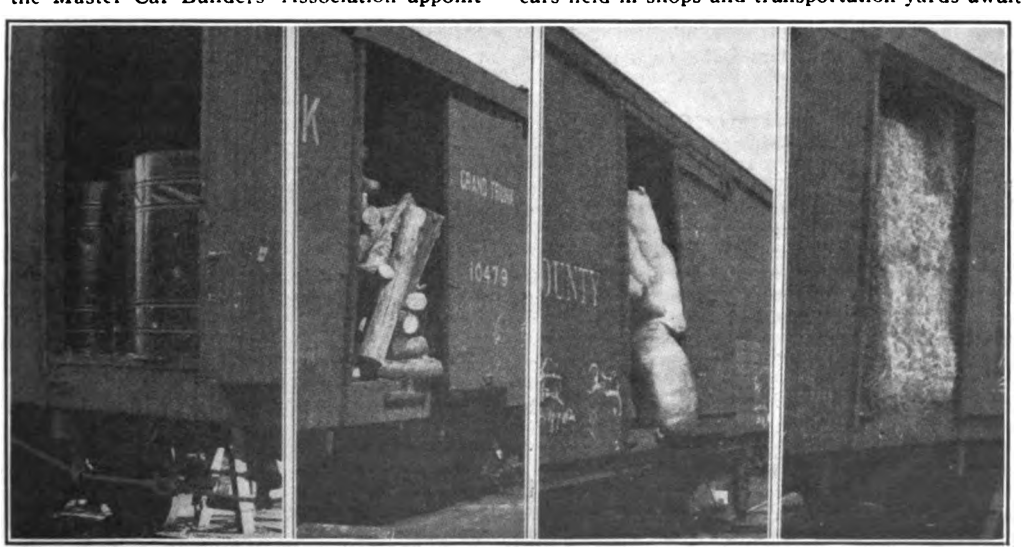
The Transfer and Adjustment of Loads.

ONE of the most interesting discussions which has recently taken place before gatherings of railway men is that which occurred at the March meeting of the Central Railway Club. The subject under consideration at this meeting was the report of the committee of the Master Car Builders' Association appointed to consider the revision of the rules of interchange. The speaker of the evening was Mr. W. H. Sitterly, the chairman of the committee.

In addition to outlining the changes recommended by the committee, which are quite lengthy, and, therefore, cannot be adequately summarized, Mr. Sitterly presented a number of illustrations, some of which are reproduced herewith, showing in a striking way the results of improper loading. The speaker stated that it was not necessary to convince railway men of the cause and effects of improper loading, and that constructive work must lie along the direction of educating shippers in the proper method of loading material both in open and closed cars. He advocated that industrial plants be furnished with a copy of the M. C. B. loading rules, and that a representative of the railroad, who was thoroughly familiar with the rules, be sent around to instruct the shipper. It was his experience that the majority of shippers welcomed co-operation of this character.

It is necessary for the railroad to see that the representative sent to instruct the shipper be thoroughly familiar with the loading rules, and has sufficient ability to meet any peculiar conditions or problems which may arise out of the shipments of each particular company. The committee found that a considerable proportion of the bad loads originated at stations where there is no inspector. In such cases the agent passes judgment on the load, and to his incomplete knowledge must be charged the resulting damage. The speaker advocated that under such conditions the agent should take the matter up with his superior, and that the company should send a car inspector, or other representative competent to handle the matter, to the point where the car is being loaded in order to instruct the shipper as to the proper method to be followed.

The committee also found that a considerable number of cars which had to be reloaded were in bad physical condition when placed upon the siding by the railroad company. In other words, they were not fit to receive the shipment. Mr. Sitterly asserted that 90 per cent of the foreign cars held in shops and transportation yards await-



FOUR EXAMPLES WHICH SHOW, IN A STRIKING MANNER, THE RESULTS OF IMPROPER LOADING.

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ing disposition from the owner on account of poor physical condition, started away from the loading point in improper condition, carrying a load which was almost certain to be damaged in transit.

The Administration of the State Railways of Prussia-Hesse.

MR. WILLIAM J. CUNNINGHAM presented an unusually complete description of the administration of the state railways of Prussia-Hesse, at the meeting of the New York Railroad Club, held on Friday evening, April 18th. Every feature of organization and operation was touched upon, and the problems of the railways of that country were illustrated by numerous statistics compiled by the speaker. His auditors gained a very good impression not only of this system of railroads as a whole, but particularly of the points in which there were radical differences from our standards of construction and operation.

It was the conclusion of the speaker that it was impossible and needless for anyone to attempt to make a comparison of the freight rates, passenger rates, expenses and operating ratios of railroads of this country with those abroad, because of the great difference in operating and traffic conditions. He believed that the only question worth considering, as regards transportation, is, how well does it serve the country in which it is located. From this standpoint it was his opinion that state operation of railways in Prussia was successful, and that the railways were operated with reasonable efficiency. While Prussia has succeeded with Government ownership and operation, yet it does not follow, because of the difference in conditions, that this country would be equally successful. Mr. Cunningham declared that nowhere are conditions more ideal for Government ownership than in Prussia. The Minister of Public Works, having charge of railways, is appointed by and responsible only to the King. Changes in this office are infrequent. Civil service conditions apply throughout the system, and the employes are subject to what is approximately military discipline. It was his opinion that the administration was entirely free from graft and the evils of political partisanship.

Settlement of Controversy Concerning Cotton Shipments.

REPRESENTATIVES of the steamship companies, railroads, cotton compressers and others interested in the handling of the cotton crop effected a settlement of the long drawn out controversies concerning the conditions under which the movement of cotton shall be made, at a meeting recently held at Dallas, Texas. The resolutions representing the conclusions of this gathering provided that the standard size gin box is to be 27 inches by 54 inches; that all bales turned out in boxes of larger length or width shall be subject to an extra charge of $1 per bale on ocean freights, and that the compressers shall charge $1 a bale over the regular price for compressing bales of a larger size than that agreed upon. In addition the existing contracts between the carriers and the compress companies shall be rewritten so as to provide: "That no receipt or clearance shall be given by the compress companies as a basis for the issuance of bills of lading except for cotton or cotton linters actually in their possession for shipment; that such receipts or clearances shall show the actual condition of such cotton or cotton linters and shall indicate whether any of the following conditions are present:

"1. Not sufficiently covered. Covering insufficient to retain marks. More or less wet. More or less stained. More or less soiled.

"Negotiations to be made on the through export bills of lading, corresponding to the notations. A clean bill of lading only to be issued against clean clearances.

"2. That each bale covered by such receipts or clearance shall be compressed to a density of not less than 32½ pounds per cubic foot, and that receipts shall show any bales which cannot be so compressed.

"3. That such receipts or clearances shall show the number of bands on each bale.

"Such contracts to provide that the compress company will not issue clean clearances for account of any shipper with whom they have not made satisfactory arrangements for the reconditioning of the cotton. In the event of its joint inspection, prior to loading such cotton is found not to conform to the clearances for account of any shipper, contract further to contain a provision for the employment of joint inspectors to the time it is compressed or loaded, for the purpose of determining the true condition of the cotton and keeping records for use in connection with any claim that may subsequently be filed.

"Any cotton for which clean bills of lading have been issued shall not be loaded by the compress company into railroad cars until such cotton as may have been damaged in the interim has been conditioned to comply with the through bill of lading. It is further agreed that if for any cause it should be necessary to load upon the cars cotton which has been damaged while waiting shipment and after the signing of the clean through bill of lading it is thereby agreed that the railroad interested will furnish in confidence to the ship agent concerned a copy of such exceptions."

Northwestern Plans Freight Loss Campaign.

THE freight traffic department of the Chicago and North-Western is giving unusually close attention to the question of how the enormous loss and damage claims for injury to freight, paid by this company as well as all others, may be reduced. This company has compiled statistics showing that while during the last year less than carload freight tonnage was only 5.7 per cent of the total tonnage, and the revenue accruing from it 21.5 per cent of the aggregate, the loss and damage arising from this class of freight was 53.7 per cent of the whole. Looking at the matter from another way, on carload freight, only 1 per cent of the revenue derived was paid out for damages, while .4 per cent was returned on less than carload shipments. The North-Western has urged upon its employes to use intelligent efforts to reduce the losses in every way possible, pointing out that under the common law, a common carrier is an absolute insurer for freight accepted by it. Its liability for goods is even greater than for passengers, for there is no such thing as contributory negligence in the case of freight.

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For the guidance of its employes in bringing about the desired result, the railroad company offers a number of suggestions, among which are that: "No shipment should be accepted that is not legibly and distinctly marked, because many of the claims grow out of careless marking; no shipment should be received that is not properly packed; all merchandise tendered in a defective or insecure container should be refused until such condition is remedied; great care should be given to loading less than carload freight in the car, and in handling goods from the freight house to the car and vice versa."

Railroads Dissolve "Military Pool."

LEARNING that the arrangement known as the "Military Pool" operated among railroads westward from Chicago, would be attacked by the Federal Government as a combination in restraint of trade, it has been decided to abolish this agreement. The pool was established several years ago, and provides in effect that all lines subscribing to the organization should participate in the transportation of Federal troops in rotation. Whenever a railroad was next in line it would submit a bid to the Government which was lower than that submitted by the other roads nominally competing. Some time ago the Southern Pacific, Western Pacific and Santa Fe announced they did not care to continue their membership. This action presaged the breaking up of the pool, which has now been definitely accomplished.

Increased Efficiency in Freight Car Movement.

ACCORDING to the statistics compiled by the American Railway Association on the performance of the freight cars of the country during December, 1912, there has been a marked increase in the efficiency of car movements over the corresponding period of the previous year. During December, 1912, the average movement during the month was 396 ton-miles per day, as against 361 ton-miles a day in the previous year. This increase in car movement is to be explained partly by the open winter, which greatly facilitated railway operation. In spite of this advantage, however, the results are most encouraging, as showing increased efficiency in operation.

The latest report of the Association covering the car supply shows that on April 15th, of the present year, there was a net surplus of 57,498 cars as compared with 79,389, on April 11, 1912. This, on its face, indicated a better traffic condition than existed a year ago, but shows a slight increase in the net surplus as compared with April 1st of the present year. This increase was greatest in coal cars, the box and flat car surplus showing a slight decline.

The Accident Roll.

IT is gratifying to be able to record that the number of serious accidents occurring during the month has been unusually small. The most serious accident was that which occurred on the Western Maryland on April 5th, due to a train running into a landslide at Tonoloway, Maryland. At the time of the accident President J. M. Fitzgerald and other executive officers of the road were aboard the train, but none was injured, although the front end of Mr. Fitzgerald's private car was smashed. The engine turned over on its side, and the three coaches which comprised the train were derailed. None was killed, although a number were more or less seriously injured.

Another accident during the month occurred on the Cleveland Terminal Valley Division of the Baltimore and Ohio, near Magnolia Station, 15 miles south of Canton. Due to defective track conditions, a car was derailed, 8 persons being injured, 2 of them seriously.

The report of the Georgia State Railroad Commission for the year 1912 shows an increase of 100 per cent in the number of employes of steam railroads killed in Georgia in that year as compared with 1911. On the electric roads of the state not a single passenger or employe was killed during 1912.

Pennsylvania Establishes Employes' Health Rule.

CONSIDERABLE attention has been attracted to the rule recently established by the Pennsylvania Railroad debarring from employment in its dining car and restaurant department any person who shows even a tendency toward a communicable disease. A quarterly physical examination of every employe having anything to do with the preparation or serving of food is to be inaugurated. Those who show any disease or a tendency thereto are to be laid off until they can exhibit a "certificate of ability" from one of the company's doctors. The order has been issued for the purpose of promoting public health.

Alton and Santa Fe to Pipe Oil over Mountain.

THE Santa Fe System has awarded a contract to the General Petroleum Company, of San Francisco for the transportation of its fuel oil by a pipe line from the Kern fields over the Tahachapi Mountains to Mojave. The petroleum company has also entered into a contract with the Southern Pacific for a similar purpose. From the two contracts the petroleum company will receive a rental of approximately one million dollars a year. The closing of these contracts has eliminated the necessity for the construction of a pipe line by each of these companies, and enables them to devote from 250 to 400 tank cars to commercial use instead of using them in railroad service. The greatest advantage accruing to the companies, however, is in the decreased cost of fuel oil to them at the point of consumption.

Mr. George H. Baker, recently appointed fuel director of the Alton system, is making a special effort to lessen the waste of coal. He has requested engineers to aid firemen in boiler feeding, and steps are being devised to train firemen in better methods of work, looking towards an avoidance of waste.

Remarkable Locomotive Performance.

ANNOUNCEMENT has been made by the Virginia Railway of some remarkable locomotive performances on that line. The record was made with a 2-8-8-2 articulate locomotive on that portion of the line between Elmore and Clark's Gas, on the Deep Water division, for

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a distance of about 14 miles, nearly all of which is on a grade of 1 in 45, with a maximum compensated curvature of 12 degrees. Over this grade, with one light Mallet as a leader and two of the articulated engines as above described as helpers—the tractive power of the three locomotives combined being about 332,000 pounds—a train load of 4,230 tons has been hauled.

Ban on Unnecessary Whistling.

ORDERS have been issued by the various railroads entering Chicago designed to prevent unnecessary whistling within the city limits. Employes are instructed to avoid all unnecessary whistling, and where whistling is necessary, the blasts should be as short as is practicable, and care should be taken to make them distinct, or properly spaced. This order follows the practice heretofore inaugurated by the Illinois Central of prohibiting the indiscriminate ringing of locomotive bells at stations.

Southern Pacific Inaugurates "Supply Train."

THE Southern Pacific System has put into operation a supply train of about 20 cars which makes regular trips over each line in its territory every thirty days. Stops are made at all section houses, construction gang headquarters, etc., and upon requisition, supplies of all kinds are unloaded. At the same time the train picks up all waste and scrap material which has accumulated during the interval, taking it back to headquarters. The train is in charge of a division officer to check up requisitions and the supplies as issued. It is believed that the train will work considerable economy in the cost of distributing supplies, and will be particularly advantageous in reclaiming scrap and waste.

Frisco Method to Avoid Waste.

MR. W. C. NIXON, vice-president of the St. Louis and San Francisco Railroad, has issued an appeal to his employes to avoid waste. If each employe engaged in maintenance of equipment and transportation work would save an average of even five cents a day for the company by preventing the waste or misuse of little articles, the total saving in one year would be nearly $400,000 on this system. Mr. Nixon points out that the prosperity of railroad employes is dependent upon the prosperity of the railroad, and that this saving, if it could be effected, would have a material bearing upon the amount of wages which the road could afford to pay.

New Developments in Signals and Dispatching.

PRESIDENT FINLEY, of the Southern Railway Company, announces that work will be commenced at an early date on the installation of automatic electric block signals on the line between the Alexandria Terminals and Orange, Va., a distance of 78 miles. When this work is completed, the Southern Railway will have its entire line from Washington, D. C., to Orange Va., protected by automatic block signals.

The New York, New Haven and Hartford is perfecting arrangements to comply with the recommendation recently made by the Public Service Commission for the reconstruction of its signal system on the line between Springfield and New Haven. It is planned to install a new signal system on the lines in both Massachusetts and Connecticut. New signals are to be similar to those now in use on the line between Hartford and Waterbury, displacing the old "banjo" signals now in use.

The Burlington System, after two years of experience in telephone dispatching on the line between Hannibal and St. Louis, has announced that on June 1st all trains between St. Louis and Burlington will be dispatched by this method. The new change means that the old method of dispatching by telegraph is to be superseded in favor of the more modern method.

In this connection it is interesting to note that the Missouri Pacific-Iron Mountain System is now using the telephone method of train dispatching with apparent success over a wide area. The entire Illinois division from Dubuque to Cairo and Illmo, and branch lines reaching to the Illinois coal fields; on the Eastern division from St. Louis to Jefferson City; the Central Kansas division from St. Louis to Jefferson City, and from Kansas City to Hoisington, the Omaha division from Kansas City to Falls City and that portion of the Arkansas division from Little Rock to Texarkana, is now being operated in this manner. In all a total of 822 miles of line with 148 stations are equipped for telephone dispatching.

The Alton is about to experiment with the plan introduced by the Union Pacific some years ago of having signal systems looked after by the section foreman. The Alton has selected a stretch of 40 miles, between Bloomington and Odell, for the experiment. The two signal maintainers heretofore employed are to be dispensed with. The foreman is to receive an advance of $10 per month to compensate him for the additional work and responsibility, and is to be held responsible for the maintenance of the signals in his section. It is believed this will effect a large economy, and will, moreover, enable the railroads to get a higher grade of men for section foremen because of the increased compensation which they can afford to pay.

Grand Trunk Offers to Give Line to Rhode Island.

PRESIDENT CHAMBERLIN, of the Grand Trunk Railway, has written to the Governor of Rhode Island offering to make an inalienable gift of the incompleted road, representing an expenditure to date of two and a half million dollars, to the state of Rhode Island on condition that the state shall complete the road and operate the line in one of two ways, as follows: "First, if the state desires to operate the railroad we will grant running rights on reasonable terms over our lines, so as to make the line sufficiently long to constitute an operating division; and we will also make a traffic agreement for a division for through rates on a mileage basis; or,

"Second. We will lease the state-owned railroad for a rental equivalent to 5 per cent on the actual cost to the state of completing the whole line."

If the state is unwilling to accept this offer he asks its consideration of his previous proposition, to have the state guarantee the amount of bonds necessary to finance the completion of the line. If neither of these propositions is acceptable to the state the Grand Trunk will abandon the line and drop the project.

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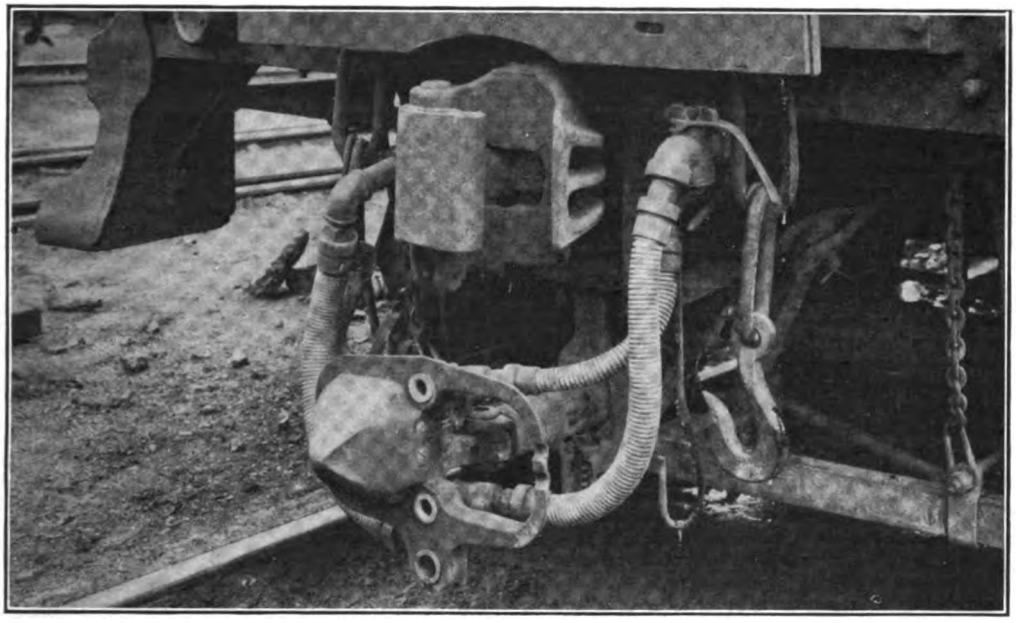
Mechanical

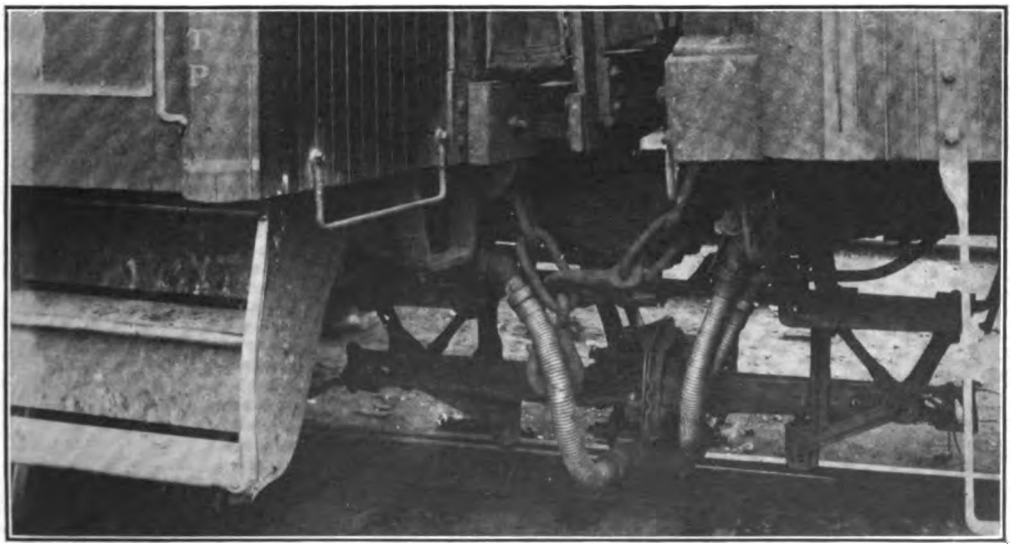
AUTOMATIC TRAIN TELEPHONE COUPLER

ONE of the latest inventions designed to prevent accidents to trainmen, is the automatic train pipe connector, manufactured by the Durbin Automatic Train Pipe Connector Company of St. Louis. This connector couples air, steam, signal line and telephone line automatically, and has been regularly employed on one of the trains of the Queen and Crescent Route, operating between Cincinnati, Ohio, and Danville, Kentucky, since March 5th. In the opinion of the general manager of that road it has, so far, proved satisfactory.

This device, as the accompanying illustrations indicate, is a butt faced type and is suspended from the car by carrying irons independent of the drawbar. The face of the connector when uncoupled extends 3½ inches beyond the inside face of the car coupler knuckle, and is pivoted to a



THE DURBIN AUTOMATIC TRAIN PIPE CONNECTOR.



SHOWING THE DURBIN AUTOMATIC TRAIN PIPE CONNECTOR IN OPERATION BETWEEN CABS.

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main shaft containing a vanadium compression spring 2½ inches in diameter. When the connectors are coupled the compression on the face is eleven hundred pounds. In addition to this there is a positive lock on either side of the connector head which automatically locks and unlocks the heads. The gathering range of the connector head is 6 inches vertically and 6½ inches laterally. The vertical movement of the connector when coupled is 10 inches. The curvature allowed for is practically unlimited, and the connector will couple and register when drawbars slip by. The device clears the rail 7 inches and the drawbar 5 inches. Gaskets can be removed and replaced without the separation of cars. The nipples are held in place by a clamp and in order to remove them it is only necessary to loosen a nut on the back of the connector head, which allows the clamp to be turned to one side.

A telephone connection is made automatically by two contact posts which are situated on the inner face of the connector head.

The weight of the connector is one hundred and forty pounds, and it is made of malleable iron. Its employment obviates the necessity of trainmen crawling under cars to make connections for either steam, air or telephone.

By its use the engineer, by simply pushing an electric button on his telephone, may signal to the conductor, brakeman or baggagemaster, as he may desire and a bell rings in each coach, while any member of the train crew can call the engineer by the same process.

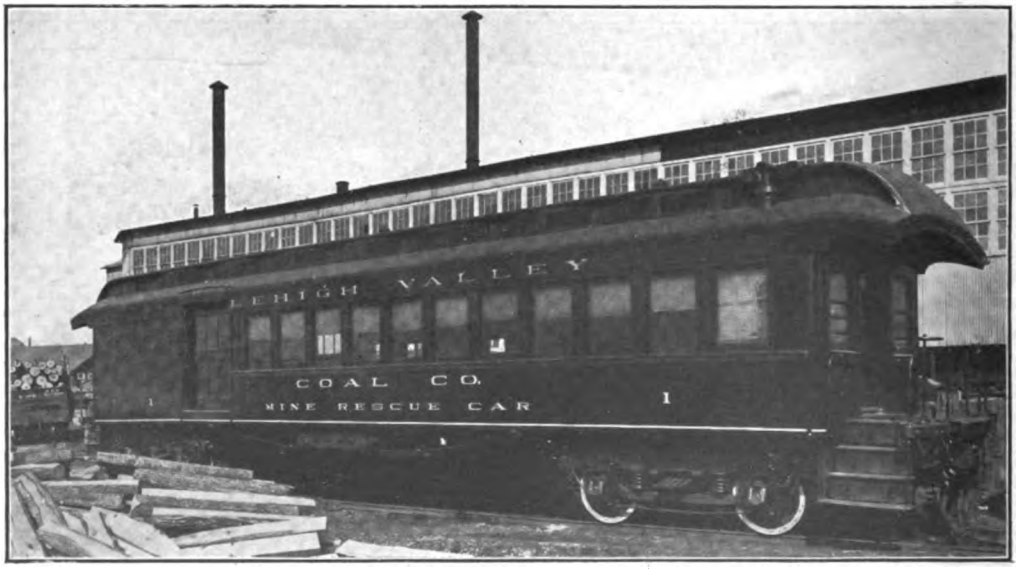
THE MINE RESCUE CAR OF THE LEHIGH VALLEY COAL COMPANY

THE mine rescue car, which has been in course of construction at the Lehigh Coal Company's shops at Drifton, has now been completed and is fully equipped. Nothing has been omitted in the final arrangements which will contribute to the safety or comfort of the sufferers from any possible mine accident.

Rescue outfits have been kept for the last half dozen years at four central points in the company's collieries, and the mine rescue car is to be maintained ready to be rushed on call to any point in addition to these previous provisions.

The car is a former combination baggage and smoking car converted for its present use. The side doors of the forward half, or former baggage part of the car, have been left as they were, and especially prepared flights of steps are carried beneath the car in order to facilitate the transportation of any injured mine worker in through the broad doors. The forward compartment, to which easy access is thus gained, contains the operating table, surgical instruments, lockers for the men's clothes, water coolers, and the first aid supplies consisting of splints, bandages, absorbent cotton, Red Cross towels, Bellevue gauze, adhesive plaster, picric acid gauze for burns, germicidal soap, tourniquets and aromatic spirits of ammonia. Hospital authorities were consulted and passed on every point from the height of the operating table to the medical supplies.

In this compartment there are also six regular United States Army stretchers in overhead racks, a dozen rubber blankets and twice as many woolen ones. Here also are the fifteen big oxygen tanks, held in racks along the wall, and the pump for charging the Draeger Oxygen Helmets, a dozen of which line the wall at the forward end of the compartment. These hang above the low lockers in which the stores are kept, and which are so constructed that a cot arrangement which will accommodate four men can be placed on top of them. Rows of spare potash cartridges, two hundred in number, and of small oxygen tanks to be used with the Draeger helmets, kept in racks around the ceiling, pulmotors, inhalators, and tools for any kind of inside work,—saws, axes,



EXTERIOR VIEW OF THE LEHIGH VALLEY COAL COMPANY'S MINE RESCUE CAR.

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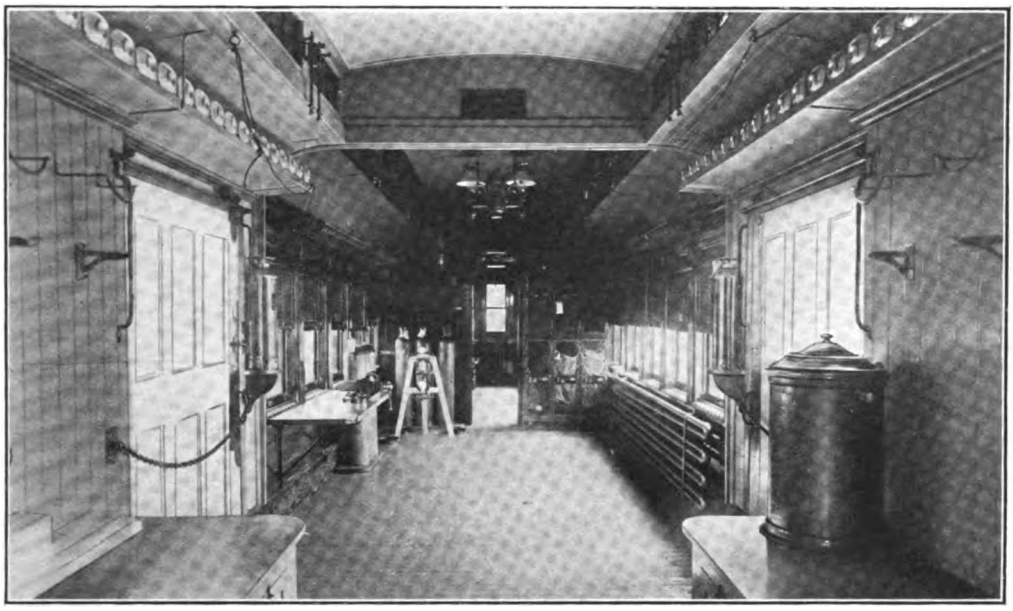
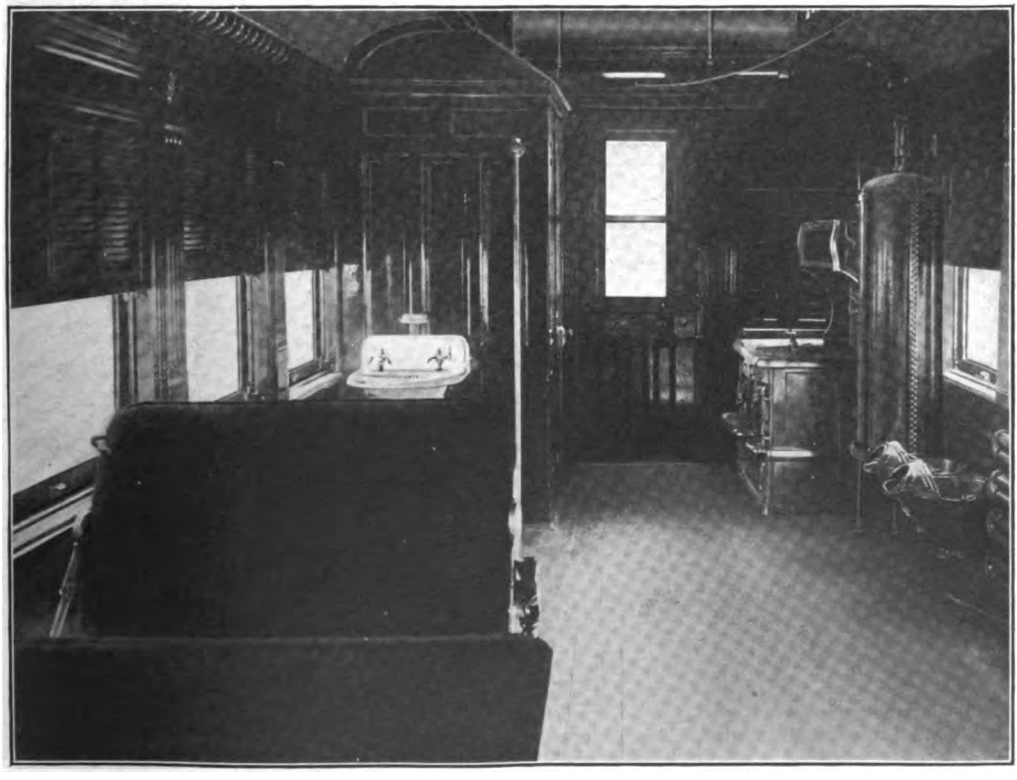


INTERIOR VIEW SHOWING FIRST AID SUPPLIES IN LOCKERS IN FOREGROUND AND POTASH CARTRIDGES IN RACKS. THE HOOKS SHOWN ARE FOR THE DRAEGER HELMETS AND THE CHARGING PUMP AND OXYGEN TANK ARE AT THE REAR TO THE LEFT.

hatchets, picks and hand drills for mining, ventilation and timbering,—complete the necessary equipment. Every inch of the car is kept immaculately clean with the cleanliness of a hospital.

The latter half of the car contains a stove for cooking, shelves and a sink, tables which can be stowed away in an overhead rack, and two facing seats which can be converted into a bed. The water supply is carried in an overhead tank, and both hot and cold water are at all times available.



KITCHEN END OF CAR WITH OVERHEAD WATER TANKS. SEAT IN FOREGROUND CAN BE MADE INTO BED.

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The car is heated by steam, so arranged that a steam hose can be run to it from any colliery, and the radiators have ample heating surface so as to insure comfort for its occupants in any weather. It carries two fire extinguishers to protect the car itself from fire, and two larger extinguishers to be carried into the mines.

The car can accommodate fifteen men, and while primarily designed for actual rescue work, it is never idle, as it is also used as a demonstration and instruction room for teaching the men at the various collieries this most important work. It is in charge of the Rescue Foreman, and the men to receive instruction are selected by the mine foreman, but the company issues a certificate to them when they are sufficiently expert, and this may be withheld if they do not qualify.

AUTOMOBILE SHIPPING PLATFORMS

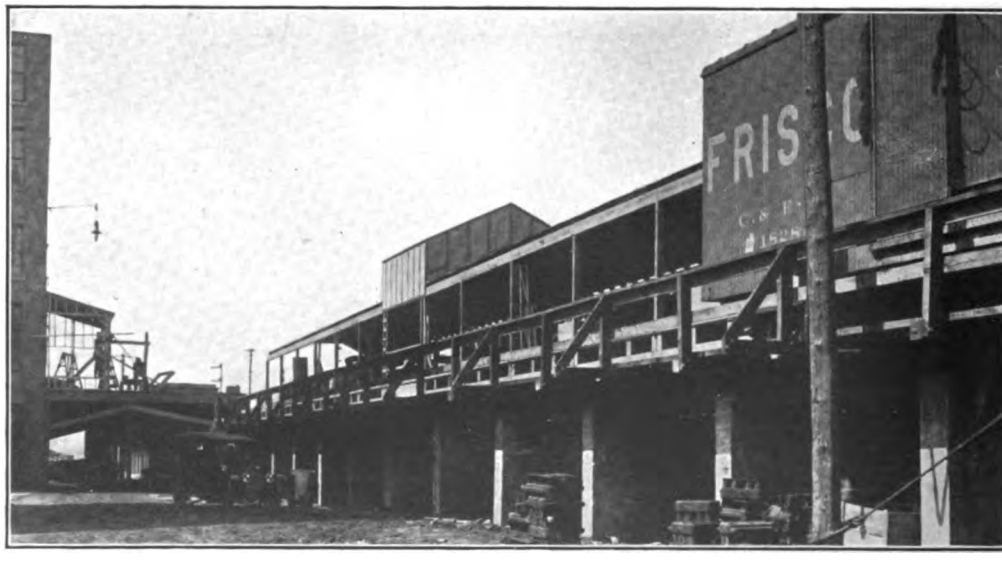
TEN years ago it was an easy matter for the railroads to handle the automobile shipments from Detroit, by diverting a few furniture cars from Grand Rapids or some other Michigan town. This condition no longer prevails. All the trunk lines have been forced to invest heavily in special rolling stock to handle the 300,000 or so new cars which are shipped annually. Solid trains of these automobile cars are of frequent occurrence in all long hauls, and the problem of the railroads to provide these cars has grown to be one of the live issues in traffic.

In the spring of 1912, the Detroit manufacturers were forced to store thousands of cars, on account of the overwhelming demand for transportation facilities. Every warehouse in the city was filled and several factories were forced to use circus tents. Police were called out to quell disturbances caused in the yards when gangs from rival factories fought over box cars. The lesson of last spring resulted in further investments in rolling stock by the big roads. In the meantime, wise traffic managers spent days in missionary work among the manufacturers, preaching the need of co-operation in loading facilities.

The Studebaker Corporation, appreciating the necessity for better loading facilities, has had constructed the automobile loading platform shown in the accompanying illustrations. By its use during the past two months 200 cars a day of the three Studebaker types have often been loaded. Another advantage is the speed with which other supplies are handled. One of the elevators connects with the warehouse where parts, advertising literature and miscellaneous shipments are boxed and placed on small trucks. The trucks are elevated to the platform from which access is easy to any car on either side of the long aisle.

A further novelty is a rolling bridge which crosses the inner siding where it connects with the main line. Actuated by an electric motor, this bridge can be removed to allow switching. The platform proper is lighted and roofed, permitting work in all sorts of weather. The manufacturers regard their investment of $60,000 in loading facilities as one which is already paying.

In the construction of the platform the fact that the main line tracks back of the plants are fully twenty feet above the level of the factory yard, due to a separation of grades at three streets, had to be given due consideration. Formerly completed cars had been driven up an inclined plane, under their own power. The new plan boldly abandoned this idea, extending the main line tracks at their grade, in the form of a massive, cement-supported shelf that projected over the factory yard, for two city blocks. The new loading platform was placed between two sidings and was pierced for two elevators, one in each city block.



STUDEBAKER SHIPPING PLATFORM. THE SPACE BELOW THE SHELF CAN BE USED FOR THE STORAGE OF A LARGE NUMBER OF FINISHED AUTOMOBILES.

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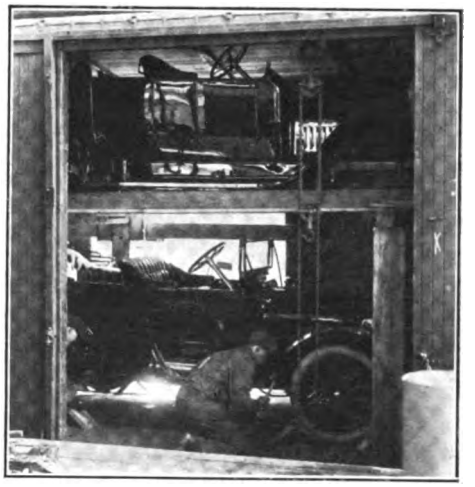
ONE OF THE TWO HYDRAULIC ELEVATORS USED BY THE STUDEBAKER CORPORATION FOR COMMUNICATION BETWEEN FACTORY YARD AND THE SHIPPING PLATFORM, MAKING ENTRANCE TO THE PLATFORM POSSIBLE, REGARDLESS OF THE NUMBER OF FREIGHT CARS ON THE SIDING.

Completed cars are driven to the elevators, two at a time, and lifted to the platform, the floor of which is level with that of the standard automobile car. Day and night loading by a large crew permits quick work, even when cars are double-decked for long shipments. Two trains can be loaded at once, one on either side of the platform, thus simplifying switching operations. Entrance being from below, is always possible, regardless of the position of cars on the siding.

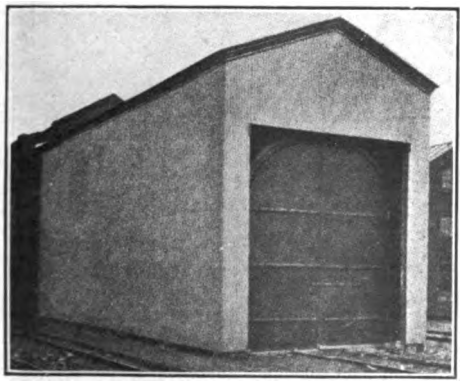
The company's traffic manager says that the advantages of the platform, direct and indirect, have been fully up to expectations. He says:

"We have found our new facilities to be every bit as advantageous as we had hoped, so far as promptness and convenience are concerned. But the most helpful feature is the pleasant relation it has cemented with the railroads. They have lost no opportunity to show how they aporeciate our efforts toward added freight car efficiency. There is sometimes a tendency for the manufacturer and the railroad to work at cross purposes. We have found that the ideal situation is one in which shipper and the railroads work in harmony, anticipating each other's wants and spending money, when needed, to smooth out the rough spots."



DOUBLE-DECKING A CARLOAD OF AUTOMOBILES.

PAINTING STEEL CARS



EXTERIOR OF OVEN USED FOR BAKING PAINT ON STEEL CARS.

AT a meeting of the American Society of Mechanical Engineers of New York, held on April 8th, Mr. C. D. Young, engineer of tests of the Pennsylvania Railroad, described in detail the process of baking enamel paint, which had been worked out at the Altoona shops of his company. This process is almost identical with that followed by the Hudson and Manhattan Railroad, the chief difference being that the Pennsylvania bakes both the exterior and interior of the car, and that it uses steam heat instead of electric heat, as does the Hudson and Manhattan. The difficulty with artificial driers and gums, according to Mr. Young, is that while they hasten the time of drying and hardening, they continue this process after the desired point has been reached, thus giving the varnish unnecessary hardness and brittleness. This results in cracking and checking, the destruction of the surface being hastened by the unequal expansion and contraction of the metal surface as compared with wood; the

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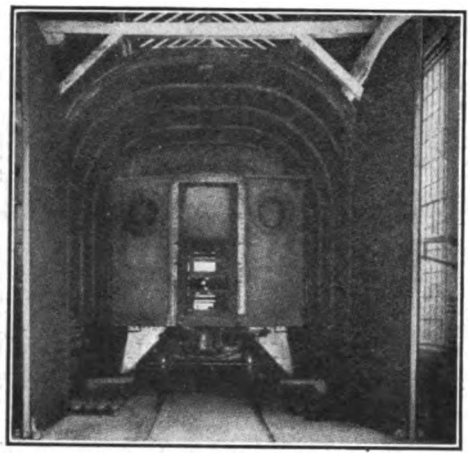


STEEL CAR AND OVEN.

linear expansion of steel being more than twice that of wood. The steel cars show interior varnish cracks and checks, in many cases, after four months of use. About 80 per cent of the cars of the Pennsylvania, after from four to eight months' use, showed serious interior varnish cracks, while the proportion of serious exterior cracks was only 6 per cent.

After a series of experiments made by painting a number of panels and baking them in a heated oven, it was found that artificial driers could be almost entirely eliminated, and that elastic varnish could be used on the exterior of the cars which, after being dried in the oven, was much superior under service conditions.

After these experiments had been completed, an oven was designed and built, the general nature of which is shown in the accompanying illustrations. It is 90 feet 3 inches long, 13 feet wide and 15 feet high. At each end are large doors through which the car can be moved. The oven is lined on the inside with steel plate, between which and the outer shell is a three-inch space filled with magnesia lining. The interior of the oven is lined with 16 rows of 1½ inch steam pipes, giving over 2,000 square feet of heating surface, and making possible a temperature over 250 degrees F.

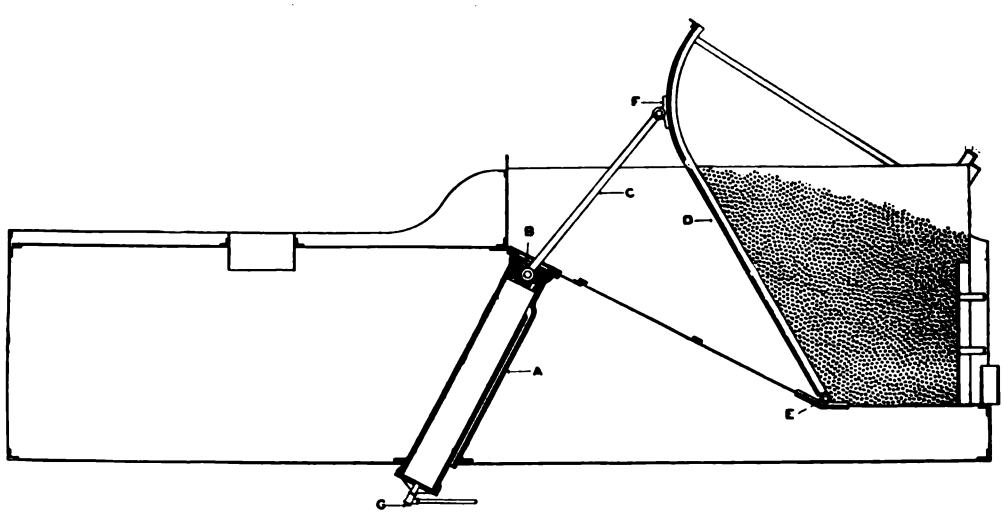
After the car has received these several coats of paint, including lettering, striping, etc., three coats of high grade finishing varnish, especially adapted for the baking process, are applied. Each coat of varnish is baked at a temperature of 120 degrees to 150 degreees, for a period of three hours, after which the interior of the surface is rubbed down with pumice stone and oil, giving the desired "flat-finish."

It is believed that this process will practically eliminate check cracking, increase the life of the paint, and hence decrease maintenance costs.

AN INTERESTING MECHANICAL COAL PASSER

A PATENT has recently been issued upon a most interesting device intending to solve in part the problem of firing the huge locomotives now demanded by operating conditions. The Ryan-Galloway mechanical coal passer, the general nature of which can be seen from the accompanying illustration, is intended to reduce the amount of labor required of the fireman in firing that portion of the fuel supply located in the back end of the tender. This portion of the supply must be carried a considerable distance, in the case of a large sized tender, before it can be thrown into the firebox. This greatly increases the work of the fireman at a time when he is naturally more or less exhausted, towards the end of his run. The essential feature of the coal passer is a tilting hopper, which is raised or lowered through a plunger, operated either with steam or compressed air.

One of the features claimed for this device is



THE RYAN-GALLOWAY MECHANICAL COAL PASSER, SHOWING THE TILTING HOPPER RAISED AS IN OPERATION.

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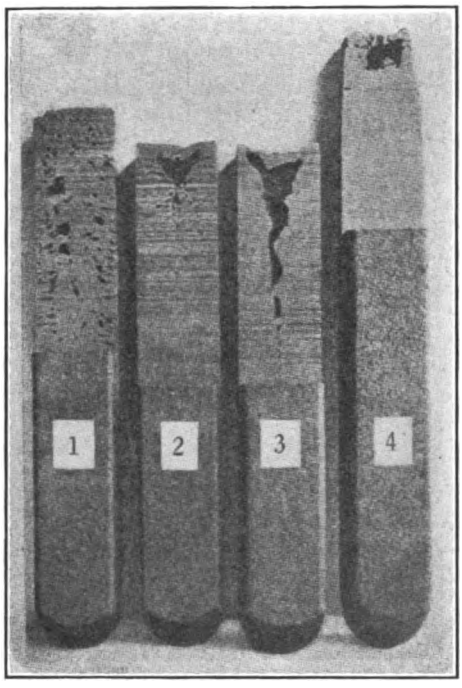
that it mixes the slack with the coal, allowing it to be burned in proportionate amounts throughout the run, rather than, as is now the case, having it all remain towards the end of the run, thereby greatly reducing the steaming ability of the engine at this time.

METHOD OF ELIMINATING RAIL FLAWS.

MANY engineers and steel manufacturers are keenly interested in the proposal of Sir Robert Hadfield, the famous English metallurgist, of a new method of casting steel ingots, which will eliminate the piping and air holes, now generally regarded as being responsible for most of the defects in steel rails. The new process by which this is to be accomplished, as described by Mr. A. Troller in *La Nature* (Paris), aims to assure the progressive solidification of the ingot by horizontal layers from the bottom upward, keeping the upper part in the liquid state as long as possible, so as to enable occluded gases to escape and impurities to collect at the top.

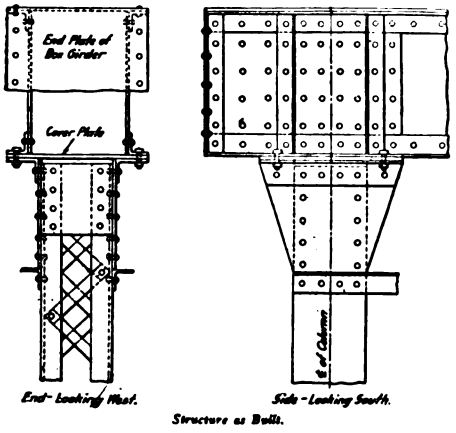
We reproduce illustrations of a number of ingots claimed to show the advantages of this process. It will be seen that while in the old ingots blow holes and imperfections are apparent almost throughout the entire upper half of the ingot, in the Hadfield ingot a very small percentage at the top is thus affected. The distinctive feature of the new process is a change in the ingot mould described by Mr. Troller as follows: "It bears a movable upper piece, furnished with a lining of refractory sand. The metal having been poured rapidly and the proper amount of aluminum having been added, there is placed on the upper surface of the molten metal a thin layer of cinders topped with a layer of coal. Compressed air is blown on the coal, which burns brightly, and thus keeps the head of the ingot at a good heat during a sufficient time."



COMPARISON OF OLD AND NEW PROCESS IN STEEL INGOT MANUFACTURE. 1-2-3, OLD STEEL INGOTS; 4, HADFIELD INGOT.

REPORT OF GLEN LOCH DERAILMENT.

CHIEF INSPECTOR H. W. BELNAP and Engineer James E. Howard have submitted their report to the Interstate Commerce Commission upon the wreck which occurred at Glen Loch, Pa., on the Pennsylvania Railroad, on November 27th, last. The main features of this wreck were reported in the "Railway WORLD for January. Mr. Howard, in his report, states that the initial line of rupture in the bridge appears to have been the completion of a fracture which existed prior to the accident. In the cover plate of one of the columns carrying the bridge the initial fracture extended from the outer surface downward to a depth about 5/8 inch, leaving about 1/8 inch sound metal. The failure to discover this fracture, which developed slowly, and the fact that the successive pounding of passing trains, coupled with the tangenital thrust the bridge being on a curve—made it inevitable that a complete fracture would result. The period of time during which the fracture was developing was a matter of inference; it may have been coming on for years, although it is certain that it has developed since the bridge was last painted, four years ago. The report states that on this division of the Pennsylvania there are from 500 to 600 bridges to be inspected monthly, and the force doing this work consists of six inspectors. It appears that the master carpenter, who has charge of the inspectors, knew, prior to the accident, that some of the angle bolts of the main girder were disturbed, and that he and the track foreman were of the opinion that the bolts in the east end of the plate girders were broken off down in the stonework of the abutment. The report finds that "The design of the bridge prevented disclosure of the fracture 'under the usual inspection.' It was inaccessible



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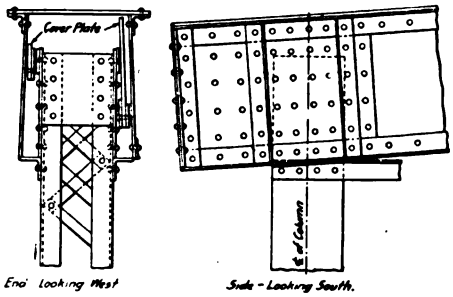


Condition of Head of Post After Rupture of Cover Plate.

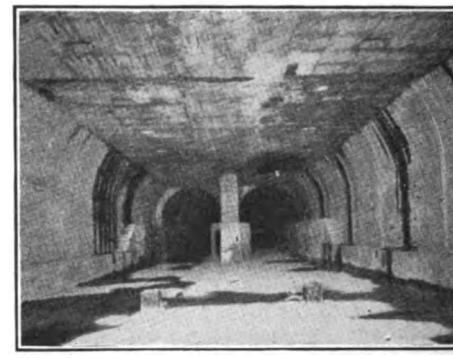
but in a comparative sense only, that is, as respecting the usual inspection. The cover plate was a short one and easily reached for painting. The double latticing of the box girder prevented direct visual inspection of the plate along its most strained section, which part otherwise was exposed to full view.

"Portable apparatus for the inspection of inaccessible surfaces has been in use for many years in other lines of inspection service, consisting merely of a mirror, with a lamp for illumination. It would doubtless be an innovation to introduce such an apparatus in bridge inspection, but in a case like the present one it is a question whether the most vital part of the structure shall go uninspected because the inspector cannot get his head into position to view the critical part or to employ the necessary means to view the same. Vital parts, demanding careful inspection, should be pointed out to the bridge inspectors by the bridge engineers, since the latter have the plans at hand and opportunity to judge by computation what parts are most strained, according to the design of the structure."

OPERATING RESULTS WITH FINISHED TUNNELS IN NEW YORK.

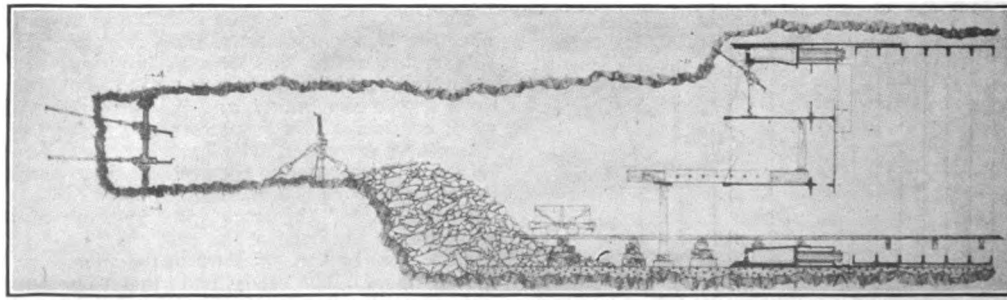
MR. ALFRED NOBLE, the eminent consulting engineer of New York City, recognized the world over as one of the leading authorities on the question of tunnels and tunnel construction, read a most complete paper before a recent meeting of the Franklin Institute on "The Railway Tunnels of New York City." This paper is printed in full in the journal of that Institute for April, 1913, and constitutes a most important contribution to the literature on the construction of large tunnels. The various engineering questions, which have to be solved in such work, the evolution of the present-day methods of tunnel construction, and the interesting and instructive features of the work of construction of the various large tunnel enterprises were reviewed by Mr. Noble. He illustrated his discourse with numerous diagrams and illustrations, showing the work of construction and the interior of various tunnels which have heretofore been built. Mr. Noble's article covers, in a large degree, ground which has been heretofore described in detail with the progress of such work.

An interesting feature of the article, however, which has not heretofore been printed, concerns the operating results which have been secured by the Pennsylvania Railroad with their New York tunnels. Mr. Noble states that the castiron lining of the tunnel is not perfectly waterproof, but while not absolutely water tight, the leakage is insignificant. A sump of some form is provided



VIEW IN THREE-TRACK TUNNEL.

at the lowest point of each tunnel or pair of tunnels, and pumped out when necessary by pumps regularly installed. "The daily leakage into the 5½ miles of river tunnels of the Pennsylvania Railroad is 2,300 gallons. The magnitude of this will be better appreciated by stating that it amounts to one drop per lineal foot of tunnel every 17 seconds, or by stating that the entire amount of leakage in one day would be removed in one or two minutes by a pump of the capacity ordinarily used by contractors of foundries. The



PENNSYLVANIA RAILROAD'S EAST RIVER TUNNEL. METHOD OF TUNNELING IN ROCK.

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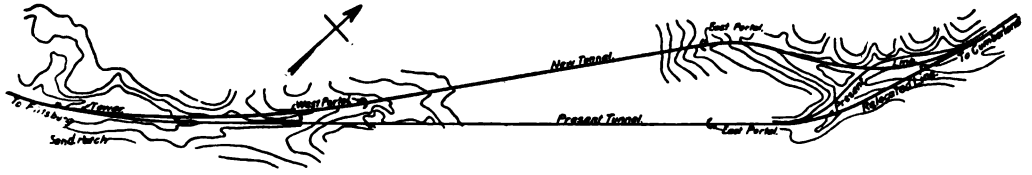
pumps provided at the new dry dock at the Brooklyn Navy Yard would remove the day's leakage in about two seconds."

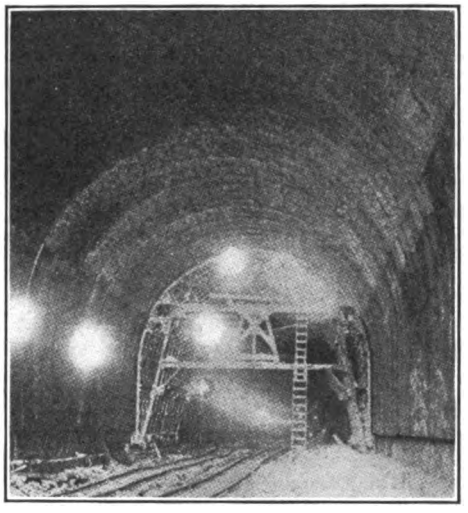
While provision was made for artificial ventilation of the Pennsylvania tunnels when they were constructed, Mr. Noble states that it has been found in practice that these ventilators are not necessary. Experience has shown that the movement of trains, forcing the air ahead, causes an entire change of air within a short time. The fans, therefore, have no value other than for emergency use, as, for example, in case there should be a fire in the tunnel, when they might be used to remove smoke, and facilitate the escape of passengers. Such a contingency, however, is most remote.

COMPLETION OF IMPORTANT TUNNEL BY BALTIMORE AND OHIO.



Alinement of New and Old Tunnels.

THE Baltimore and Ohio has completed the construction of a new tunnel at Sand Patch, Pa., on the Connellsville division. This tunnel, which is about 4,000 feet in length, is designed for double track operation, and parallels the present single track tunnel. Sand Patch is the summit of the Baltimore and Ohio lines in crossing the Allegheny Mountains. The approach from either side is by heavy grades—1.5 per cent from the east and 1 per cent from the west—which when combined with the single track tunnel, made very difficult operating conditions. For some time the old tunnel has been gradually disintegrating, requiring the introduction of wooden under-timbers to hold it up, except in the comparatively small section which was lined. This, together with the poor ventilation, made it impossible to use pushers with heavy freight trains. Accordingly, in 1911 plans were adopted for the construction of a new double track line, 11,000 feet in length, upon the north side of the present track, in which would be located a 4,000-foot tunnel. The maximum grade on the new line is 1.5 per cent on the east approach to the tunnel, although through the tunnel the grade is only .05 per cent, making unnecessary pusher service through the tunnel. Because there has been no reduction in grade, it follows that no increased tonnage capacity over this division can be expected. The accompanying illustrations show something of the magnitude of the work of construction, and the interior of the tunnel when practically completed.



INSIDE OF NEW BALTIMORE AND OHIO TUNNEL, SHOWING BRICK FACING OVER CROWN OF ARCH.

REPORT OF COMMITTEE ON SIGNALS AND INTERLOCKING.

ONE of the most interesting reports which was submitted at the recent meeting of the American Railway Engineering Association, was that of the Standing Committee on Signals and Interlocking. The major portion of the report of this committee is devoted to a discussion of the effect of treated and metal ties on track circuits. The committee sent out a circular letter to all members, to which 126 replies, representing 92 railroads, were received. Sixty-nine of these roads use no zinc treated ties; 4 of them use these ties to such a limited extent as to render an opinion impossible; 7 companies use these ties extensively, but do not have them installed where track circuits exist. Out of the total number of companies replying, only 12 use such ties in connection with track circuits. The committee points out from this fact that the question of the effect of zinc treated ties upon signal circuits is not a pressing one to the great majority of roads at the present time, but it is of value chiefly from the standpoint of future development.

The conclusions of the committee, based upon an analysis of the replies received, and other evirence collected, is:

"(1) That track circuits a mile in length are rendered inoperative by the extensive use of zinc-treated ties.

"(2) That track circuits 2,000 feet in length may be operated successfully even with 50 per cent or more of ties so treated.

"(3) That 10 per cent to 15 per cent renewals a year will not materially affect such length circuits.

"(4) That where renewals are made of fifteen

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or twenty adjacent ties the leakage is much greater than where they are made singly at uniform distances, i. e., with 15 per cent renewals (every sixth or seventh tie).

"(5) That while the surface salts are present more leakage occurs during wet weather than with untreated ties, as these wet salts form a better conductor than ordinary wet wood.

"(6) That in dry, hot weather the salts are drawn to the surface and constitute a more or less perfect conductor.

"(7) That after a period varying from three months to a year these salts disappear and subsequently no interference is noticeable."

As regards metal ties, the committee stated that it was self-evident that each rail must be completely insulated from its ties to prevent a short circuit; that defective insulation at any point will cause leakage, and a current at both ends of even one tie will throw the track circuit out of service. So far as the committee was able to ascertain, the effect of creosoted ties is not serious, particularly where alternating current track circuits are used.

The committee on ties submitted a report, stating that an exhaustive study of stresses in cross ties had been made during the previous two years. The committee was of the opinion that it was impracticable to define experiments which would determine the proper size of cross ties. The report further stated that the committee had been unable to obtain any definite information relative to the effect of different designs of tie plates and spikes on the life of the tie, although experiments now being conducted would, it was hoped, give such information.

Report of Committee on Ballast.

THE committee on ballast, in its report, proposed service tests to determine the proper depth of ballast of various kinds. In all six tests were proposed covering practically every condition ordinarily encountered, the cost of which is estimated by the committee to be about $3,000. The committee reported concerning the cleaning of stone ballast by the use of screens, expressing the conclusion that a gang of twelve men, properly equipped with tools, could cover about 165 feeet of double track per day of ten hours, making the cost per mile of double track $540, including not only cleaning the ballast, but dressing the track and disposing of dirt.

Material for Signs, Fences and Crossings.

THE committee on signs, fences and crossings, reported the results of an exhaustive study of various classes of material for use in such work. The average life of each class of wood was stated as ranging from 25 years for Bois d'Arc to 10 years for white oak. The committee pointed out that the decision should not be based entirely upon the question of life, but upon the question of cost, the final result being worked out on the amount which must be set aside each year for purposes of renewal. Upon this basis the relative cost per fence post ranges from one-half cent to two cents per year of life.

A very interesting feature of the committee's report was the discussion concerning concrete fence posts. The report presented a large amount of information concerning the design and method of manufacture of eleven different types, ranging in price from 12.8 cents to 25 cents per post.

The conclusions of the committee as regards concrete fence posts were that they were practical, economical, and a suitable substitute for wood; that the reinforcement should be placed as near the surface of the post as possible, one-half inch from the surface being the best location; that the post should taper from the base to the top, not being less than 5½ inches at the base and 4 inches at the top; that the concrete mixture should consist of one part cement to one of pit gravel, or one part cement, two parts sand and four parts crushed rock or screen gravel, the gravel or rock to range from one-fourth to one-half inch in size; that posts should not be made out of doors in freezing weather, and not exposed to the sun, but instead should be sprinkled with water during the first eight or ten days after being made; that the posts should be cured for not less than 90 days before being set or shipped, and when shipped, to be packed in straw, sawdust or other suitable material, and carefully handled.

The Fence Wire Question.

ANOTHER interesting report was that submitted by the committee appointed to investigate the means for obtaining non-corrosive fence wire. The committee reported that developments in the manufacture of such wire had been very few, both in this country and abroad. The committee found that English railway companies were not satisfied with wire supplied by United States manufacturers, and that one company had installed machinery for the purpose of manufacturing wire for its purposes. It was claimed, according to the committee, that English galvanizing was greatly superior to that of this country; that it was very largely done by the cold process of what was termed "electro-galvanizing." One American railroad company, the name of which was not given, which had been conducting tests since 1909, reported that the wire galvanized after weaving was found to be in perfect condition, with no indication of rust. With the ordinary dipping process corrosion had been rapid during the past year, the galvanizing entirely disappearing. The specially galvanized wire was found to be in excellent condition, while sherardized wire showed corrosion in an advanced stage, the preventative having practically disappeared. The last named method of treating wire had proved less satisfactory than any of the others.

Maintenance Cost of Freight Cars.

MOST car builders have recognized for years that the calculation of the maintenance cost on the car mileage or car-per-year basis is an unsatisfactory method because no consideration is taken of the productive mileage which the car has made. The enormous number of cars which must be covered in such accounting, and the fact that during a large part of the time they are on foreign lines, has made this problem particularly difficult, although it is generally recognized that an accurate unit of measure should be devised.

Mr. J. C. Fritts, master car builder of the Delaware, Lackawanna and Western, has made the suggestion that a proper basis of comparison would involve the three principal factors of car

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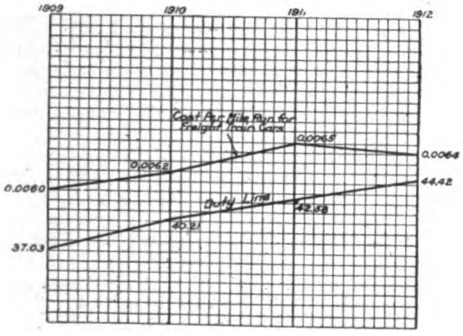


Showing Comparative Trend of Maintenance Cost and Duty Performed by Freight Cars on the Delaware, Lackawanna & Western.

miles, carrying capacity, and average tons per train. He suggests the following formula: "Average mileage per car multiplied by average capacity per car multiplied by the average train tons divided by 4,000,000. (The figure 4,000,000 has no significance; it is merely used in reducing the result to a figure more easily handled)." Applying this formula to the freight equipment on the Lackawanna system, he finds that while the cost per car mile for repairs has increased 66-10 per cent from 1909 to 1912, the duty performed by the car equipment has increased in the same period 19-110 per cent. The comparison by years is shown graphically in the accompanying chart.

Automatic Train Stops.

THE general details of the two automatic train stopping devices which have been selected by the New Haven for the purpose of experimentation, as announced in the last issue of the RAILWAY WORLD, are now available. The two devices which are to be tried are being constructed respectively by the Union Switch and Signal Company and the International Signal Company. Both devices are similar in so far that they are both intermittent contact devices, and the most promising feature of each is that the apparatus is tested each time the train passes over it.

The speed control feature of one of these devices is particularly promising, as it is impossible to vary the speed control according to physical conditions and speed desired, so that at one point if the engineman should exceed a speed of twenty-five miles an hour while passing a stop or slow-down signal, the train would be stopped; while at another point, if he should exceed a speed of fifteen miles an hour under the same conditions the train would likewise be stopped.

The other device is superior in that it requires no electrical apparatus on the locomotive and therefore the device may be inspected by enginemen who are familiar with air brake apparatus and valves.

New Electric Car Heater.

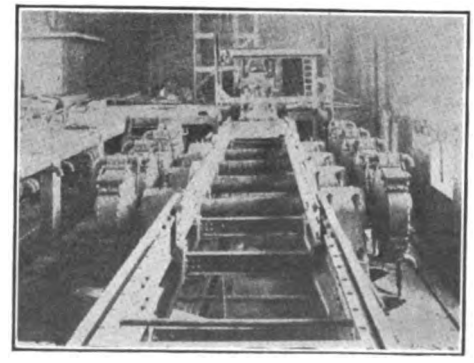
ONE of the serious questions confronting railway men in connection with the electrification of their roads is that of car heating. The Pennsylvania System is now experimenting with a new style of heater devised by Mr. J. T. Wallis, general superintendent of motive power of the Altoona shops. The new system consists of an electrically heated boiler of the flash type, designed to generate steam, a four-cylinder feed pump and a water tank placed between the frames of the electric locomotive. In operation, when the steam reaches a certain temperature and predetermined pressure, the pump is automatically shut off, and remains so until more water is required, when it is again automatically cut in, thus supplying the necessary water for steam heat. Through this device it is possible with electric locomotives to heat cars in exactly the same way as is now done.

Tests of a New Brake.

IT is reported that tests are being made on the West Jersey division of the Pennsylvania System of a new device which it was claimed will bring a train to a complete stop within a much shorter time than is now possible. Trials are being made with a view to the introduction of the device, if found satisfactory, in connection with electrical operation. At present the electric trains on the West Jersey and Sea Shore, and in fact on all of the Pennsylvania lines, are supplied with air brakes which are constructed on the same system as brakes in use on trolley cars; that is, the increase or decrease of pressure in the air tank automatically starts and stops an electrically propelled pump, which keeps up a given amount of air for supplying the brake pistons. Under the new methods air will be eliminated as an agent of control and the train will be operated, lighted, heated and brought to a stop by the use of electrical power.

New Locomotive Testing Laboratory.

AT its last session, the Legislature of the state of Illinois included among its appropriations for the University of Illinois the sum of $200,000, which has been expended by that institution for the erection of a transportation building and a locomotive laboratory for the department of railroad engineering. This plant, which has just been completed, is one of the most complete in the world, and will be of the greatest service to the railways in the scientific settlement of many important questions concerning the design and con-



REAR END OF TESTING PIT, SHOWING THE REMOVABLE TRACK, THE SUPPORTING WHEELS, THE BEARINGS AND THE BRAKES IN POSITION.

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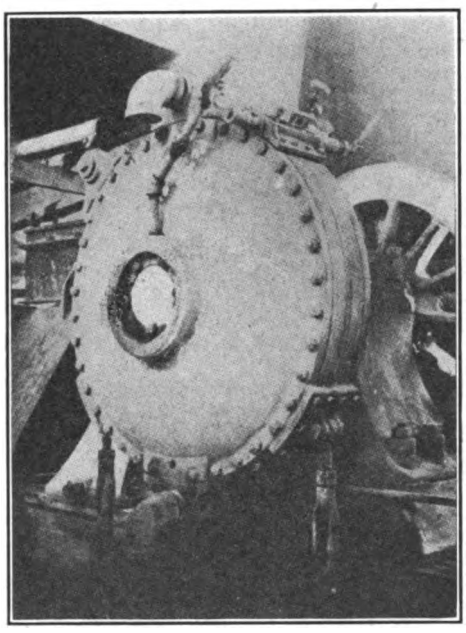

AN EXTERIOR VIEW OF ONE OF THE BRAKES.

struction of locomotives. Some of the interesting features concerning the equipment of the plant are shown in the accompanying illustrations. The general design of the testing devices is similar to those heretofore employed in the dynamometer in the Pennsylvania Railroad Company's plant at Altoona. While the Pennsylvania plant has a maximum capacity of 80,000 pounds, the new plant of the University of Illinois possesses a capacity of 125,000 pounds, or about 15,000 pounds in excess of the greatest tractive effort which could be imposed upon it by even the most powerful Mallet locomotive now in existence. The plant has been designed to receive the largest existing locomotives of the Mallet type, while considerable margin has been left at every point to take care of the future increase in the size, weight and power of locomotives. The type of brake used to absorb the power from the driving wheels is shown in the accompanying illustration. It is of the type used in all other American testing plants, and proven by experience to be satisfactory in operation. Each brake is designed to develop resisting torque of 18,000-pound-feet, which is more than is likely to be submitted to it by the most heavily loaded locomotive driver. Considerable latitude has been allowed in the construction of the bearing pedestals, permitting the use of from 52 inches to 72 inches diameter supporting wheels. The laboratory throughout is fitted up in the most approved manner, and contains every device essential for the accurate and scientific testing of locomotives of every description.

Electrical

Discussion on Electric Operation before the New York Railroad Club.

THE New York Railroad Club held its ninth annual "Electric Night" on March 20th. These evenings have become matters of great interest to all railway men interested in electrical operation, because at these gatherings are brought together some of the most eminent men in this field, whose prepared remarks and extemporaneous discussions serve to sum up in an authoritative manner the progress which has been made in the preceding year. Mr. William McClellan, consulting engineer of New York, opened the discussion. He stated that not a dollar had been spent for the advancement of new projects during the year 1912, and that the most important work for the year 1913 would be that already announced by the Rio Grande and St. Paul systems. It was his opinion that no steam railroad could contemplate the large investment required for electrification under present conditions, considering the trend of regulation of corporations, the prices of material and the uncertainty of the labor situation. There was nothing experimental about the technical side of the question; it was one of finance and of the current situation.

Mr. E. B. Katte, chief engineer of electric traction of the New York Central, reported that during the past year his company had extended its multiple unit operations to the present terminal at Croton, and that a considerable amount of electrical installation in sub-stations, distributing lines, etc., had been made necessary thereby. Electrical and multiple unit cars of this company have now been in operation for more than six years, and during 1912 the maintenance and renewal cost of locomotives, including shop expenses, painting, etc., was 3.34 cents, while compared with 3.2 cents in 1910 and 3.08 cents in 1911. The maintenance and renewal cost of the multiple unit cars had been respectively 1.08 cents, 2.1 cents and 1.9 cents in these years.

Mr. Frank J. Sprague reviewed the various advantages and disadvantages of single phase alternating current and direct current operation. He stated that while the art had practically arrived in sight of the limiting potentials of such system, there was still no general agreement as to fundamentals, and the situation was much involved because of professional and manufacturing rivalries. He believed that greater co-operation should be brought about between manufacturers to relieve the railways, in a large measure, of the financial burden of electrical equipment. He believed that this would require the development of a financial organization outside of the manufacturing and railway companies. He advocated the creation of a group of consulting engineers, to be compensated by the manufacturers through a joint fund, to whom all difficult technical questions might be referred for advice, and the formulation of conclusions. Such a board of engineers, which would devote their entire time to this work, would collect and correlate all of the reliable information to be had upon the various questions confronting the industry.

This view was endorsed by Mr. C. O. Mailloux, consulting engineer of New York, who pointed to

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the work which a technical commission had done in Germany in carrying out the famous Zossen high speed electric railway tests. According to his views not more than 10 per cent of the steam railroads in the United States could be profitably electrified at the present time. Mr. Frank Hedley, vice-president of the Interboro Rapid Transit Company, took issue with this statement, believing that a larger percentage of steam railroads were ripe for electrification.

Details Concerning Pennsylvania Railroad's Electrification.

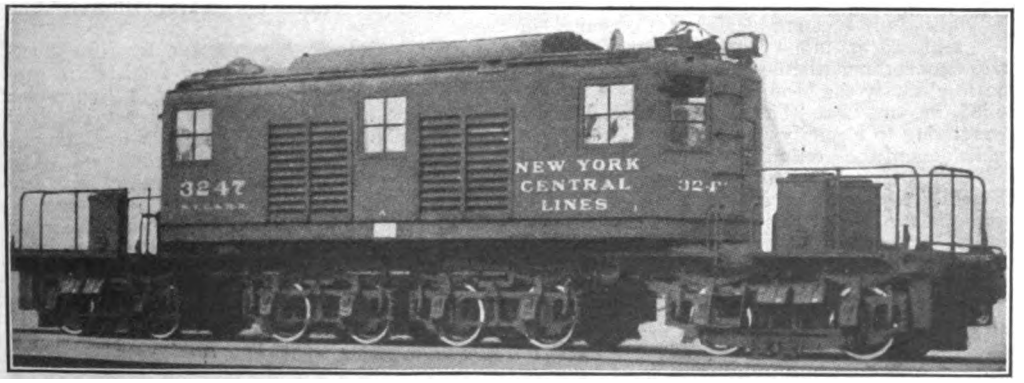
ALTHOUGH no official information has been forthcoming regarding the plans of the Pennsylvania Railroad Company to electrify its main line from Philadelphia to Paoli, other than the official announcement reported in the April issue of the RAILWAY WORLD, what appears to be authentic information concerning some of the main details are forthcoming. *The Electrical World* states that it is unofficially informed that alternating current will be used, and that the company will buy energy locally, at least for the next few years. This is borne out by an answer which President McCall, of the Philadelphia Electric Company made in response to a question of one of the stockholders at the annual meeting of his corporation, in which he stated that the "prospects were bright" for securing the contract for supplying the energy for the line to Paoli. From other sources it is reported that the third rail, rather than the overhead system of supplying electric current will be employed, and that the suburban service will be operated largely with the multiple unit system rather than by the use of electric locomotives.

It is rumored that the company is seriously considering the question of electrifying its Baltimore Terminal. This rumor is given some color by recent large purchases of land in Baltimore in the interest of the Pennsylvania. According to the *Baltimore Sun*, the plan includes not only the electrification of the Calvert Street Station and of the tunnel, but also of the suburban lines outside of Baltimore on the Northern Central up to and perhaps beyond Parkton and through the Green Spring Valley as well as the Pope's Creek branch and the Sparrows Point line. The *Wall Street Journal* states that the next steps in the Pennsylvania electrification, in addition to the work in Baltimore, will probably be the electrification of the Washington Terminal, and eventually the coupling up of the Philadelphia, Baltimore and Washington sections by the electrification of the entire line between these points.

NEW TYPE OF ELECTRIC LOCOMOTIVE FOR NEW YORK CENTRAL.

THE New York Central has recently placed in service an electric locomotive of a new type, representing an advance over the standards heretofore employed by this company. The new locomotive, which is the result of an exhaustive series of tests made by the railroad company, is being constructed by the General Electric Company. It possesses the advantage of being some 15 tons lighter than those now in service, the estimated weight of the new locomotive being 100 tons. At the same time it is more powerful, and is designed with ample forced air ventilation, with a view to continuous high speed service. In the old type of locomotives only 70 out of 115 tons of weight was carried on the driving wheels, the balance of over 40 tons being surplus weight, which was carried by the bogie trucks, and which was added for the sole purpose of guiding the locomotive. The new locomotive, on the other hand, carries the entire weight on motor driven axles, and is capable of exercising sufficient tractive effort to haul a train weighing 1,000 tons at 60 miles per hour. It will have, in regular service, a continuous capacity of 1,400 horsepower, and can develop as high as 5,000 horsepower for very short periods.

The most striking change in the new locomotive, as compared with the previous standard, is the addition of motors to the bogie trucks and a still greater separation of the fixed wheel base and the guiding trucks. The latter has necessitated the lengthening of the machine, requiring the construction of the running gear in two halves, with a spring-connected articulated joint between the frames. The general appearance of the locomotive and its more important dimensions can be gathered from the accompanying illustrations.



GENERAL VIEW OF NEW YORK CENTRAL HIGH SPEED LOCOMOTIVE, SHOWING ARRANGEMENT OF CAB AND TRUCKS.

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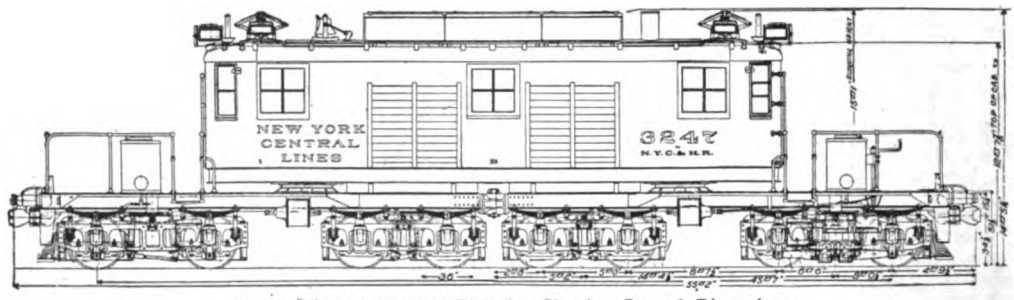

High-Speed Locomotive—Elevation Showing General Dimensions

Plan to Compel Electrification in Chicago.

AN ordinance was introduced into the City Council of Chicago on April 14th requiring all railroad companies to operate trains by power other than steam on and after July 1st, 1914. A fine of $200 for each time a train or car is operated after that date in a manner that produces smoke or gas injurious to the public health, comfort or convenience is provided. The ordinance was referred to the committee on local transportation.

Electrification of California Lines.

IT is reported that the Ocean Shore Railroad, running between San Francisco and Santa Cruz, has decided to electrify its line. No decision has been reached as yet concerning the question of the advisability of using storage battery car, the overhead trolley or the third rail system, although it is believed that under the circumstances the storage battery car may prove to be the most desirable.

The new Oakland, Antioch and Eastern Railway has put into operation a stretch of 37 miles of line from Oakland to Bay Point, and is rapidly pushing the work on the balance of the line so that within a few months the entire road from Oakland to San Francisco and Sacramento, with the various branches, will be in operation by electric power.

Norfolk and Western to Electrify Section.

PRESIDENT L. E. JOHNSON, of the Norfolk and Western Railway Company, in reply to an inquiry of the *Manufacturers' Record* concerning whether his company was planning to electrify the Mountain division of its line, replied, in part, that "The Norfolk and Western is arranging to electrify its line from Eckman to Bluefields and the preliminary work in connection therewith is now under way, but the plans are not sufficiently advanced to give out any details. Negotiations are in progress with the Appalachian Power Company, but whether we will take power from it or not is as yet undecided."

The distance from Eckman to Bluefields is 27 miles, and through a mountainous country. The Appalachian Power Company, which has large hydro-electric plants in Virginia, has its distribution system in the same territory as the section of the Norfolk and Western which it is proposed to electrify.

Electrification Plans of the Rio Grande.

ENGINEERS of the General Electric Company have completed their preliminary estimate of the cost of the contemplated electrification of the portion of the lines of the Denver and Rio Grande over Soldier Summit and Tennessee Pass in Colorado and Utah. The plans, it is understood, provide for the electrification of the line from Helper, Utah, to Salt Lake City, a distance of 131 miles; as well as the double tracking of the road over the mountain. It is believed that the total expenditure will be about $8,500,000. The plans will be considered in the near future by the board of directors.

Proposed Legislation in New York.

THE State Senate of New York has passed two bills intended to regulate and facilitate the development of hydro-electric power. The first bill is intended to permit the State Conservation Commission to utilize the surplus water in large canal dams in the Mohawk Valley for the generation of electric power. The second bill, known as the Walters bill, is intended to encourage the formation of corporations to develop and privately own water power. It authorizes corporations to issue 50-year bonds to build storage dams, the bonds to be retired out of the revenue, and when so retired the work to revert to the state. The corporations formed under this act are to pay an annual tax of $3 for every million cubic feet of water stored.

Ontario Government Planning Electric Lines.

THE Ontario Government has introduced a bill into the Provincial Legislature providing for the creation of a hydro-electric power commission which, whenever required to do so by the Lieutenant Governor in Council may investigate and report upon the cost of constructing and operating electric railways in any locality where power is supplied by the commission, together with an estimate of the probable revenue therefrom and the economic value of the line to the locality. It is understood that this is the first step looking toward the building up of a network of radial railways in connection with the provincially owned hydro-electric system. The leader of the opposition party publicly congratulated the Government on the introduction of this bill, which would indicate that it will be passed without difficulty.

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Terminal Improvements

PLANS FOR RAIL AND WATER FREIGHT TERMINAL IN NEW YORK.

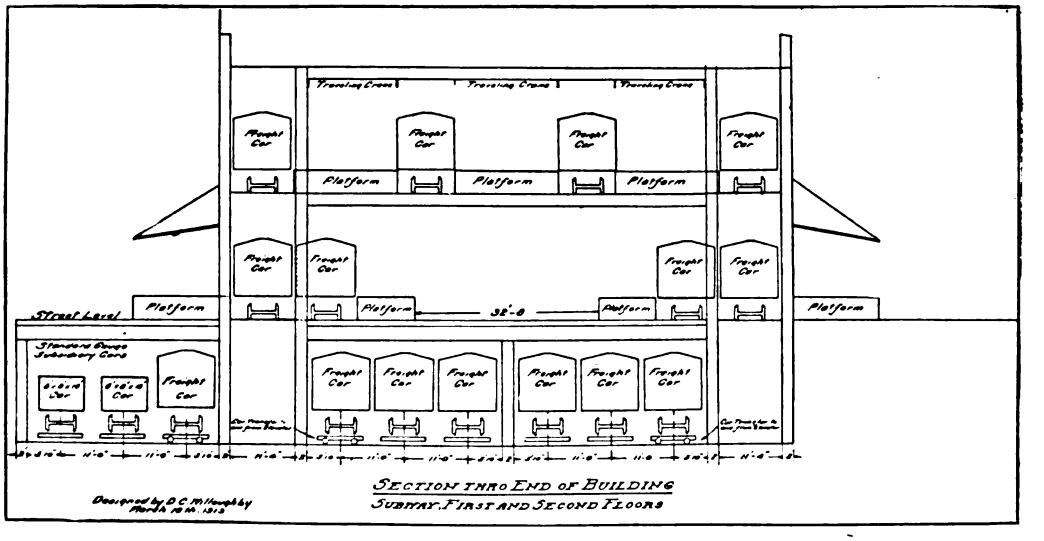
MR. D. C. WILLOUGHBY, a citizen of New York, has submitted to the Board of Estimate and Apportionment of that city a plan for the construction and operation of a great subway rail and water freight terminal on the Marginal Way of West street, on the Hudson or North River. This plan, unlike a great many such projects, has passed sufficiently beyond the paper stage to warrant serious consideration, for it has been submitted to eminent engineers, who have made tentative favorable reports thereon, and in addition, two responsible banking firms—Landenburg,Thalman and Company and Kissel, Kinnicutt and Company—have committed themselves to finance the project, providing the details can be satisfactorily worked out.

The plan proposed is to build a general modern freight terminal between West street and the North River, both north and south of 30th street, together with a six-track subway on the Marginal Way, constructed to provide for the movement of standard freight cars, from which sidings will diverge at frequent intervals to the various warehouses, loft buildings and factory buildings comprising the terminal. This six-track subway is to be connected by two or four single tube tunnels under the Hudson River, with a commodious general terminal classification yard in New Jersey, to which yard all of the railroad lines terminating in New Jersey shall have connections. In addition, the New York Central will make a physical connection with the six-track subway paralleling the river front. If this plan were executed, therefore, every railroad system reaching the harbor of New York will be able to discharge carload lots of goods, without unloading, at the factories, warehouses or the ship's side along the west water front of Manhattan Island.

The magnitude of the project can be judged from a few typical facts; the storage and classification yard, for example, to be located in New Jersey, is to have a capacity of 11,600 cars, and is to be laid out according to the most modern practice for such yards. The car capacity of each building for loading and unloading without interference with running or switching movements of the subway is to be 154 cars, or for the 17 warehouses which it is proposed to present erect, a total of 2,618, to which should be added a car capacity for the six public market places provided in the plan for 24 cars, making a grand total of cars which can be simultaneously loaded or unloaded, of 2,642 cars.

The engineers employed in connection with this project report that at the present time the total average number of cars floated by car floats by all of the railroads across the North River to pier stations on Manhattan Island is 5,310 cars per day; in other words, the new terminal would provide at the beginning facilities for loading and unloading freight equal to one half of the present business of all the terminal piers on the North River. The tunnels and marginal subway would, of course, have a capacity considerably in excess of the immediate requirements. The engineers further estimated that with the completion of this project, the railroads would save from their operating cost between the New Jersey meadows and their water front terminals in Manhattan, $2 per car, representing the cost of the switching movement; 22 cents per ton for double handling on and off of their New Jersey piers; the excess in the cost of handling the freight at their New York pier stations over and above the cost at the proposed terminal; and finally the excess in cost of handling freight at the ship's side, amounting to 11 cents for eastward freight and 14 cents for westward freight, plus their lighterage expense, which is figured above 40 cents from bulkhead to bulkhead, exclusive of labor.

The plans for the construction of the buildings do not involve any radical departure from the practice heretofore employed in connection with the Bush Terminal and other projects of a similar character. The cuts reproduced herewith show



SECTION THRO END OF BUILDING
SUBWAY. FIRST AND SECOND FLOORS

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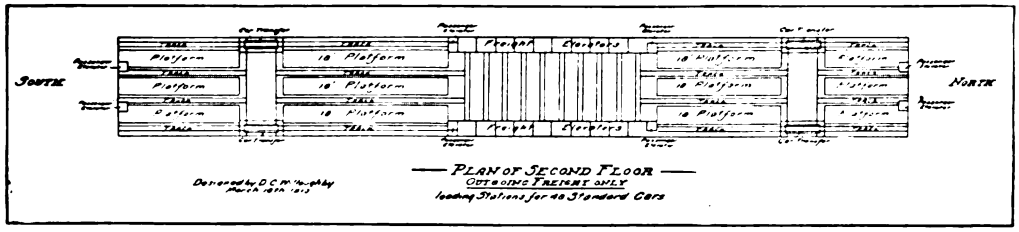


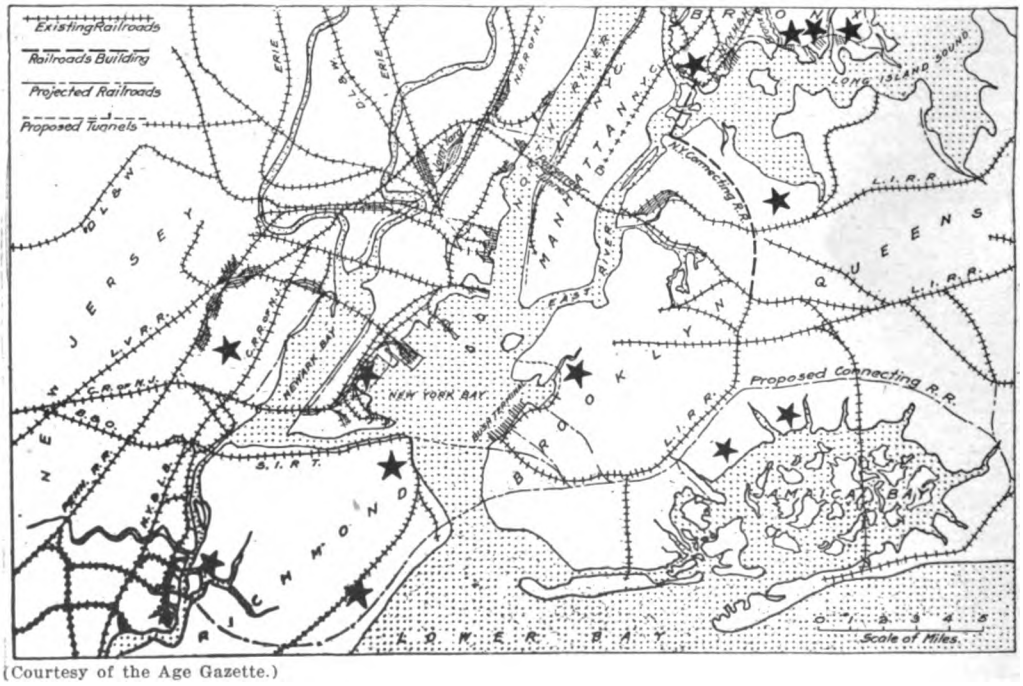
the proposed type of construction for the buildings to be erected. The buildings to be constructed at this time are to be used for storage warehouses, or as lofts, the two upper stories being adapted to manufacturing. Each of the buildings is to be 100 x 750 feet, nine stories high, constructed of concrete and brick. The street level of the buildings will be arranged as local freight yards for receiving and discharging freight. The second story will be used for handling steamship, local shipper or "interchange of cargoes" by rail. It is planned that the original installation shall consist of seventeen buildings.

The total cost of the project is estimated at $85,000,000, and as has been said, this sum is substantially underwritten. It is proposed that the company shall receive a franchise under which the city shall have the right to repurchase after the expiration of ten years, at the original cost plus 15 per cent for contractors' profit—the profit being decreased on a sliding scale after that time so that at the expiration of the franchise, at the end of 50 years, it shall have been reduced to nothing. The buildings and property of the company are to be vested absolutely in the city at the expiration of 50 years.

One of the most interesting articles of the month is that appearing in the *Railway Age Gazette* of April 11th, entitled "New York's Freight Terminal Problem." In this article a careful review is made of the advantages and disadvantages of various terminals now existing, the terminal requirements of Greater New York City, and the various steps which are being taken to provide additional facilities, both to meet present requirements, and to make provision for the future. We reproduce herewith the diagram which accompanied this article, showing the proposed connecting railroads and terminal development sites for New York City. It will be seen that the plan as outlined is a most comprehensive one, and would give adequate terminal facilities for every part of Greater New York.

Practically all of the plans which have been proposed by various railroad officials or city officials of New York City are commented upon in this article. An interesting feature is that the proposal projects two freight tunnels at the bottom of the upper basin, almost opposite the Bush Terminal, between Richmond and Brooklyn, thus giving to the Baltimore and Ohio, and other companies, direct tunnel connection with Long Island.

The plan involves the familiar proposal for the construction of an elevated freight road in New York City and the construction of a mammoth joint classification yard, near the site of the proposed tunnels on the New Jersey side, which should be connected in turn by all of the Jersey roads by a belt railroad, as shown in the map.



(Courtesy of the Age Gazette.)

PROPOSED CONNECTING RAILROADS AND DEVELOPMENT SITES FOR GREATER NEW YORK.

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NEW YORK CENTRAL SOLVES WEST SIDE PROBLEM

AN agreement has been reached between the officials of the New York Central and a special committee of the Board of Esimates, for the solution of the vexatious problem on the West Side of New York City. The plan as agreed upon provides for the comprehensive improvement of the west side piers, and the development of additional railroad facilities upon the water front. The city will be under no expense in connection with this work. The entire cost, estimated at from fifty to sixty million dollars, will be born by the railroad company. The agreement provides for a crossing over the Harlem River, a ship canal at the northern end of the island, a tunnel along Inwood Hill from a point under the brow of the hill to Dyckman street, and a tunnel through Fort Washington Park. The railroad is granted easements for a six-track right of way. The agreement calls for roofing of tracks along Riverside Drive from 122d street to 72d street and the retention by the city of marginal strips outside of the railroad's right of way from Dyckman street to 50th street.

The New York Central will construct a four-track subway through what is now private property from 59th to 44th streets, and an elevated railroad from 42d street to the present 30th street yards. South from 30th street a two-track subway is provided for under 10th avenue to 15th street, thence under the present Gansevoort market site to the head of Washington street to Canal and Varick streets, at which point the subway will enter the company's new extended St. John's Park yard.

The cost of roofing the tracks along Riverside Park is estimated at $7,000,000. The new 1,200-foot steamship piers will be built in the stretch between Fifty-ninth and Forty-fourth streets. The company's subway will curve inland around the new piers. On the roof of the subway there will be a new marginal way and every cross-town street from Fifty-ninth to Forty-third streets will have its grade altered so as to run up to the marginal way. From this direct access at grade will be given to the second stories of the structures to be built on the new piers. There is no intention of altering the railroad's freight yards covering the district between Seventy-second and Sixtieth streets.

NEW FREIGHT CLEARING YARD FOR CHICAGO.

AT a meeting of the Board of Directors of the Belt Railway Company of Chicago, held on March 4th and 5th, final plans for the construction of the great clearing yard located on the outskirts of the city were approved. Work is already commenced, and the first unit of the new yards will be completed early in 1914, at an estimated cost of $5,000,000.

The Chicago and Western Indiana Railroad Company, the owner of the physical property operated by the Belt Railway of Chicago, executed a lease of this property to the Belt Railway running for a period of fifty years from November 1, 1912; also of the property formerly owned by the Chicago Union Transfer Railway Company and purchased by the Chicago and Western Indiana Railroad Company in October, 1912. This lease is coupled with an operating agreement running for a corresponding period between the Belt Railway and its eight owner lines. providing for a division of the working expenses of the Belt Railway on the basis of proportionate use.

Under the purchase of the Chicago Union Transfer Railway Company's property the Belt Railway secured some 1,237 acres of land for construction of the clearing yard and since then 600 additional adjoining acres have been purchased. This land will permit the ultimate construction of yards capable of handling 20,000 to 30,000 cars per day and transfer freight depots for less than carload traffic. Plans are now being drawn for a very large transfer station of this character to be equipped with mechanical handling devices and so arranged as to accommodate all the owner lines of the Belt, with room for great expansion and ultimately space for all of the Chicago railways. Round houses, car and locomotive repair shops, storekeepers' warehouse and offices for operating and accounting forces and provided for in the present plans and will be erected during the year. Additional main line tracks, the elevation of portions of the main line and an auxiliary clearing yard for the southern and eastern lines are contemplated in plans now under construction and provision has already been made for the financing of this work.

The construction of this great interchange facility marks an epoch in the commercial and industrial history of Chicago. Its benefits to the city and the Chicago railway Companies are far-reaching.

The railway terminal situation in Chicago has always been exceedingly complicated and utterly lacking in co-ordination or system. The enormous growth of the traffic handled in this district has presented to the railway companies a very difficult operating problem. The cost of handling has been excessive and frequent congestions of traffic have caused very great inconvenience and expense to shippers located in the Chicago district and those using the Chicago gateway. The very rapid growth of Chicago's commerce and the spreading out of industries into outlying portions of the city and suburbs have tended still further to complicate the situation. Attempts have been made from time to time during the past ten years to secure some permanent betterment of the Chicago situation, but without success, although the need for improvement has been keenly realized by railway officials. The establishment of the Clearing yard is the first important step towards an adjustment of this situation. Upon its completion a very large volume of traffic now being interchanged by the various lines through their own facilities in the congested part of the city will be handled at Clearing.

Less than carload traffic originating in the outlying portions of Chicago, or delivered by shippers at union stations. also forwarded from industries and warehouses in so-called "trap-cars" will be taken direct to Clearing station for loading into scheduled outbound merchandise cars. This traffic at present is very largely

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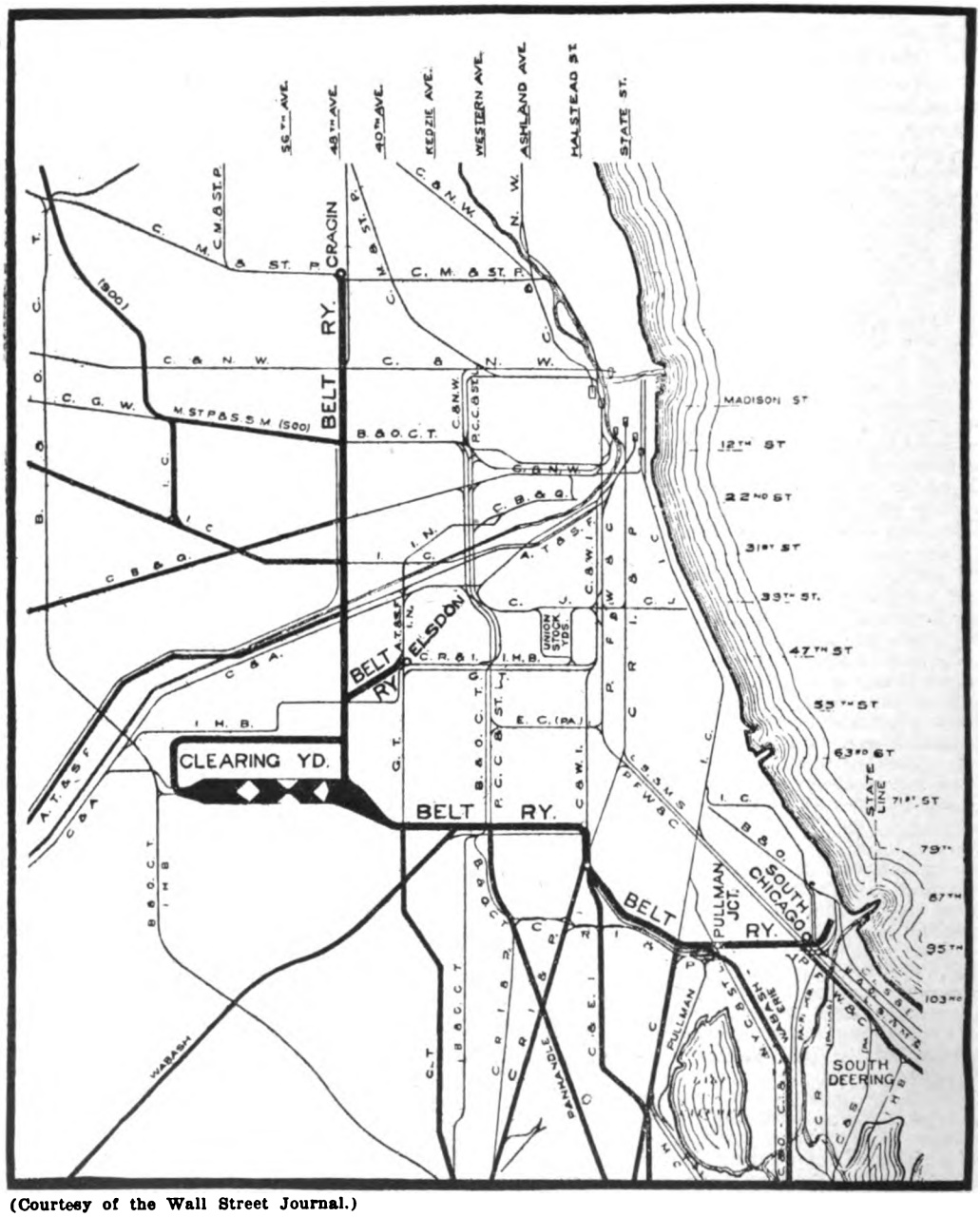

(Courtesy of the Wall Street Journal.)

CHICAGO'S NEW FREIGHT TERMINALS AND CLEARING YARD.

taken to city depots located in congested districts, which in all cases, have not sufficient capacity to handle traffic delivered by teams to say nothing of the business brought in from outside points. It is estimated the capacity of the city freight depots will be increased 30 per cent under the new plan. Arrangements are being considered now for connections with the Illinois Tunnel Co.'s system and lighterage companies operating on the Chicago river, which will further tend to relieve inside congestion.

The very great benefit of this plan to the owner lines of the Belt may be appreciated by the statement that it will add to their Chicago terminals, yard facilities equal in capacity to 10,000 cars per day and to city freight depots 30 per cent to 50 per cent of their working capacity.

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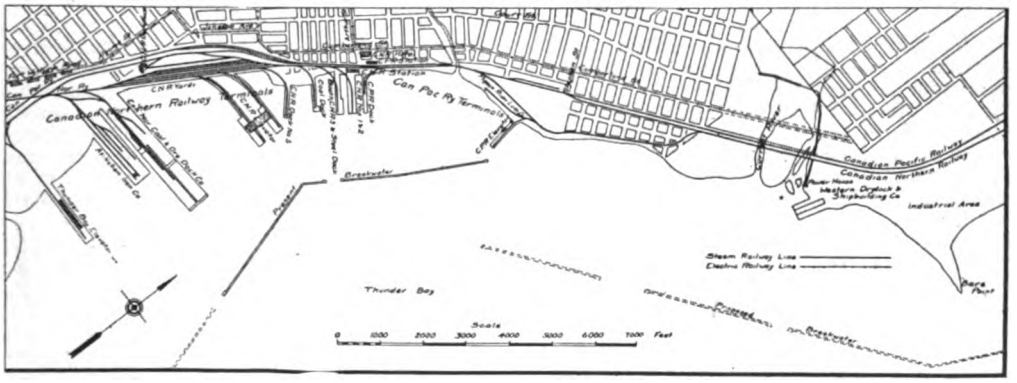
RAILWAY TERMINALS AT PORT ARTHUR.

THE marvelous growth of the rich agricultural territory in central Canada is bringing unparalleled prosperity to Port Arthur and Fort William, which are the natural gateways for the exportation of the grain and other products of this rich territory. The railway systems enjoying this business, that is, the Canadian Pacific, Grand Trunk Pacific and the Canadian Northern, are making extensive plans not only for the present, but in order that they may have room for future expansion with the inevitable growth in the traffic at these points.

At the present time the Canadian Pacific has a battery of three modern grain elevators at Fort William, a large coal handling plant equipped with the latest mechanical devices, besides extensive piers and storage sheds at the same point.

At Port Arthur the Canadian Northern has a large frontage with numerous wharves and storage sheds, and plenty of opportunity for expansion. This company, moreover, has one of the largest sets of grain elevators at this point in the world, with a capacity of 12,000,000 bushels. The same company, in conjunction with the Ore Dock Company and the Antikokan Iron Company, has erected an enormous ore and coal handling plant capable of storing 500,000 tons of coal.

The Canadian Pacific has unusually good facilities, as is seen by the accompanying illustration showing the layout of the water front of Port Arthur. A notable feature as regards the Canadian Pacific is the large amount of space which the company possesses for the purposes of future expansion.



-Plan Showing Railway Connections Around Port Arthur.

Interstate Commerce Commission

Concerted Movement for Higher Freight Rates.

RAILROAD managers throughout the country plan to shortly file with the Commission, application for increases in freight rates. The conditions which confront the carriers at the present time are such that unless certain advances in rates are soon permitted, the commerce of the country will suffer a severe check. The demand for improved terminal facilities, for double tracking, for additional lines, for larger equipment, are becoming more insistent each day, and it is a well known fact, with which the Commission is thoroughly familiar, that these conditions cannot be satisfactorily met, unless the carriers are permitted, in some way, to expand their present revenues. The recent increases in the wages of both the engineers and firemen and the demands of other employes now before the managers, have made the general rate problem more acute, and it is not to be wondered at that railroad officials are about to apply to the Commission for relief.

In this connection, the recent decision of the Commission in the Intermountain rate case, to which we refer later, and which is generally favorable to an increase in certain rates by these roads, is significant, in that the practical effect of this decision is to raise rates on these Western roads where the ton-mile rates are already far above the average. If the Commission allows increases under such conditions, it is certainly not unreasonable to expect that it will also permit other roads, whose average rates are not so high, some measure of relief.

Commission Names Valuation Board.

ANNOUNCEMENT has been made by the Commission of the selection of the members of the Board of Engineers who are to assist the Commission in formulating a plan for the physical valuation of railroads. It is expected later to arrange for the appointment of an army engineer to be added to the members already selected. This board will, after perfecting plans in consultation with the Commission, have direct charge of executing the work.

The board as announced by the Commission is as follows:

"R. A. Thompson, now employed in valuation work by the California State Commission, and formerly employed in like work by the Texas State Commission. The California Commission has agreed to release Mr. Thompson from his agreed definite term of service with them.

"W. D. Pence, chief engineer of the Wisconsin

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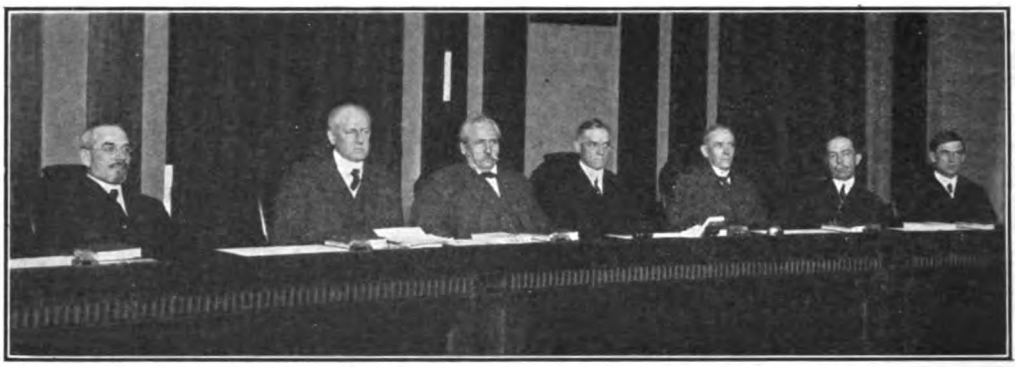

THE INTERSTATE COMMERCE COMMISSION AS NOW CONSTITUTED. READING FROM LEFT TO RIGHT THE MEMBERS ARE: B. H. MEYER, J. S. HARLAN, J. C. CLEMENTS, E. E. CLARK, CHAIRMAN; C. A. PROUTY, C. C. MCCHORD AND J. H. MARBLE.

Railroad and Tax Commissions, and who has for some time been in the employ of the Wisconsin Commission in valuation work.

"J. S. Worley, of Kansas City, Mo., a consulting engineer in private practice, who has had experience in valuation work.

"Howard M. Jones, of Nashville, Tenn., a consulting engineer in private practice, and who has had much experience and who is especially familiar with bridge engineering.

"E. F. Wendt, of Pittsburg, Pa., president of the American Society of Civil Engineers, and now in charge of the engineering work of the Pittsburg and Lake Erie Railroad."

Efforts are being made through the War Department to have an army engineer designated to service to the Board. The Board will have charge of carrying out the actual work of valuing railroad property and at the same time make such recommendations to the Commission as it deems necessary in expediting the work.

It is believed among railroad officials that several years will probably be required to gather the necessary data for the proposed physical valuation. When the data is gathered, it is not unlikely that a number of representative railroad officials will be designated to take up with the Commission the leading principles involved in the whole question. Estimates of the time necessary to complete the work vary from two to five years.

Higher Pacific Coast Rates Approved.

THE Commission has approved certain increases in commodity rates by transcontinental and other railroads from the territory east of the Missouri River to Pacific Coast terminals. The Commission's action was the result of an agreement reached between the transcontinental lines and the shippers, and constitutes the first substantial encouragement received by the railroads to their contention that higher rates are necessary.

The carriers filed tariffs with the Commission which were to become effective September 31 last. These tariffs proposed to increase terminal rates to interior rates on all commodities which were not actually or potentially affected by water competition. Pending its investigation the Commission suspended the effective date of the increase. The decision allows most of the advances.

The decision also marks a new departure in the Commission's procedure, in that the railroads and the shippers have agreed on satisfactory rates and then submitted them to the Commission for approval. If the Commission had been obliged in this proceeding to deal with the usual contested record as to each increased rate the investigation would not have been completed for several months. More than 400 changes in rates were involved in the proceedings.

The increases in the terminal rates by the railroads grew out of the Commission's decision reducing the intermediate rates in the so-called Reno and Spokane cases. The carriers contended that the readjustment of the interior rates made it necessary for them to make changes in the terminal rates. The result of the carriers' policy was to increase their terminal rates, particularly on non-competitive freight. The Commission's decision says, in part:

"For many years the transcontinental lines have maintained commodity rates from east of Colorado points which were lower to the Pacific Coast terminals than to intermediate points such as Reno and Spokane, upon the theory that the former were forced by competition of the steamship lines from the Eastern seaboard via Panama.

"Following the amendment to the fourth section of the Act, in 1910, and proceedings of the Commission based thereon, carriers have filed tariffs in which it is proposed to increase the terminals rate to or in excess of the interior rates on all commodities which are not actually or potentially affected by this water competition. These tariffs are under suspension in this proceeding.

"Following the hearings before the Commission the parties have met in formal conference between themselves and, with the Commission and by their mutual concessions, most of the items in controversy have been adjusted satisfactorily to the shippers."

The Import Rate Case.

THE recent reopening of the import rate case before the Commission by Boston interests, has led the Pennsylvania Railroad Company and the Philadelphia and Reading Railway to file briefs regarding their position in the matter. These briefs maintain that no evidence has been submitted to sustain Boston's claim that it should be put on a parity with Baltimore or

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Philadelphia with regard to import rates. The following points are made:

1. If the 70-cent scale Boston to Chicago applying on domestic traffic via differential all-rail routes be established via standard routes Boston to Chicago, the rates on third and fourth classes would be lower than the rates from Philadelphia.

2. For some time prior to 1907 the commodity import rates from Boston were the same as from New York, in 1907 one cent under New York, and in 1908 two cents under New York, or the same as from Philadelphia. There is nothing, therefore, in the history of these commodity rates which would in any way justify Boston taking either the Philadelphia or the Baltimore rate.

3. Boston as well as New York, Philadelphia and Baltimore has standard all-rail rates on the regular basis, rail and lake rates, and relative ocean and rail rates. Neither New York, Philadelphia nor Baltimore has any differential rate under the ordinary scale via any standard all-rail line, nor has New York, Philadelphia or Baltimore a differential rate via any all-rail line. Boston therefore, under the present adjustment has the advantage of a differential all-rail route which is not break-bulk, namely, the Boston and Maine in conjunction with the Grand Trunk or the Canadian Pacific.

The Commission and the Panama Canal Act.

THE Commission has made its first use of the Panama Canal Act in a recent decision in the case of the Augusta and Savannah Steamship Company against the Ocean Steamship Company, of Savannah, and other carriers, ordering the lines to file tariffs of through rates from points in Georgia to certain points in Massachusetts. The carriers at present have a joint tariff under which merchandise may move from Augusta, Ga., to Savannah, Ga., to North Adams, Mass. The Commission held that the lines having voluntarily subjected themselves to the jurisdiction of the Commission with respect to traffic destined to North Adams, the Commission has authority to compel them to file similar tariffs with respect to other points similar to North Adams and perhaps in competition with North Adams.

Quoting that section of the Panama Canal Act whereby the Commission is given jurisdiction of the rates by rail and water from points in one state to points in another state "through the canal or otherwise," the decision says further:

"If the amendment applies to the traffic in question, the right of the Commission to establish this through route is clear. The defendants contend that it does not apply, for the reason that this amendment relates only to traffic which passes through the Panama Canal. They argue that the words 'or otherwise' modify the phrase 'by rail and water' and not the phrase 'through the Panama Canal or otherwise,' and the defendants have referred us to no canon of construction nor to any reason for disregarding the obvious meaning of those words. Indeed, a consideration of the situation to which the amendment applies would seem to conclusively demonstrate that the position of the defendants is not correct, since the words 'or otherwise' are pure surplusage if read as the defendants say they should be. Traffic through the Panama Canal can only move by rail and water, unless it moves from port to port, and in that case we have no jurisdiction. We hold, therefore, that the Commission has jurisdiction to establish the through routes and the joint rates prayed for."

In another decision the Commission also holds that carriers may not properly advance charges to ocean carriers on import traffic, except where property is billed through from point of origin to ultimate destination, and such through billing separates the liability of the inland carrier or carriers from the liability of the ocean carrier and shows the tariff rate of the inland carrier or carriers. Such charges of water carriers may not be advanced by railroad carriers subject to the act in cases where property moves under a separate contract of transportation from the port of entry to the final destination.

Decision on Lake and Rail Rates.

THE Commission holds that the carriers under certain conditions may advance their rates during the season when navigation is closed on the Great Lakes. The case involved was that of the American Insulated Wire and Cable Company against the Chicago and North-Western Railroad Company and others. It was charged that in the shipment of copper wire from Dollar Bay, Mich., to Chicago a rate of 15 cents a 100 pounds was charged on carload lots when navigation is open and 22 cents a 100 pounds when navigation is closed. The Commission holds that the maintenance of the varying rates is not in contravention of the statute.

Results of the Colorado Pass Investigation.

THE investigation recently made by Commissioner Harlan into the practice of the Colorado railroads of giving free transportation to government officials and large shippers within that state, has brought sensational results. Criminal indictments of large shippers and the offending carriers have been returned. Commissioner Harlan personally conducted an investigation and, in his own characterization of the situation it "developed violations of the law on an extraordinary scale." Mr. Harlan says in a preliminary report that "in one month over a single railroad seven thousand trips were made on passes. Not only shippers who controlled routing of traffic in any appreciable quantity were favored at all times, but even public officials, careless alike of duty, morals and danger, accepted, even demanded these favors of the carriers.

"The record shows that judges, state officials, members of the Legislature, county and municipal officers, including mayors and aldermen have generally made use of passes. Not only has this been the case but the record shows that where passes were not volunteered they were asked for by public officials. Even judges have not hesitated to pursue this course. Personal requests by judges upon the carriers for passes are disclosed by the record, accompanied by expressions of their sense of obligation for such favors granted to them both before and after they went on the bench.

"All classes joined in the orgy of petty graft; at once sacrificing rightful revenues of the carriers, discriminating against all small shippers and demoralizing all public officials, including the Legislature and the bench."

Commissioner Harlan says that the Colorado carriers have given assurance that they will conform their fare practices to the rulings of the

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Commission in pass matters. The report does not disclose what further steps may be taken or other violations of law uncovered in course of the investigation but a final report is promised to make clear the views of the Commission in this forbidden traffic in transportation.

Order on Western Passenger Fares Extended.

THE order of the Commission requiring carriers in Central Passenger Association territory, on or before May 1st, 1913, to bring their passenger tariffs in harmony with the fourth section of the law, including instances in which interstate passenger fares exceed the combination of rates established by state authority, has been extended until May 1, 1914, with the understanding that unless by that time a definite order is issued by the Commission, a further extension will not be made.

Ruling on Excursion Fares.

ACCORDING to a recent decision handed down by the Commission, railroads may be held to be discriminating if they sell passenger fares of a certain nature between stations without selling similar fares to competitive points. The case in which this ruling was made was that of Hiram G. Beach against the Ann Arbor Railroad. The Ann Arbor has maintained a round-trip week-end fare of $1.25 during the summer season from Toledo, Ohio, to Whitmore Lake and Lakeland, Mich., which are summer resorts. The road refused to sell similar tickets to Hamburg, Mich., a summer resort located between Whitmore Lake and Lakeland. The Commission held this act of the road to constitute a discrimination, and ordered the road to correct its fares accordingly by June 1.

Final Plea in Express Rate Cases.

FINAL arguments in the express rate cases were presented before the Commission last month. Representatives of the express companies appeared to explain their exhibits of estimates of possible losses in revenue resulting from an application of the reductions in rates proposed by the Commission, and to argue therefrom that these proposed rates are unjust. It was declared that if the reductions are forced on them, the companies would not only suffer a great reduction in gross revenue, but would have an actual deficit after operation expenses have been paid.

Walker D. Hines asserted that for the five companies he represented—the Adams, American, United States, Southern and Wells-Fargo—application of the proposed rates to present business would reduce revenues about $20,000,000 a year, or 5.85 cents on every dollar's worth of business done. Such a reduction in revenues, he said, would be absolutely destructive. He maintained also that the formula-made rates would disturb seriously business conditions in large centers, such as New York and Chicago, by forcing a readjustment of competitive business conditions. Recent parcel post developments have also placed the express companies under an additional heavy handicap, which is having a decided effect upon their revenues.

Under these conditions transportation and shipping interests are generally looking for a postponement of any final decision by the Commission on the proposed new rates, until the express companies have had further opportunity to adjust their present rate schedules to meet the competition of the parcel post. Others in touch with affairs at Washington appear to be practically of the same belief and that the final decision as to new rates may not be forthcoming for a number of months or even a year. It is certain that the Commission cannot, until a considerable period of time has elapsed, judge fairly as to the effect of the parcel post competition upon the revenues of the express companies. It is believed that the Commission will preserve the fair attitude it has consistently manifested throughout the whole investigation, and there is little credence placed in the assertion, made in some quarters, that the Commission may feel morally obligated to stand by the rate reduction it tentatively adopted last May. Those who have watched the Commission's activities of the past know that such a belief is entirely unwarranted.

Express company officials freely admit that this new parcel post competition must be met. In fact, they clearly recognize in it a new factor of fast growing importance and one they will have to cope with. Under the circumstances, it is not unlikely that the Commission will permit the express companies to find their own solution to the new problem without having to contend at once with reductions in rates outside of the present parcel post domain.

Block Signal System Report.

THE Commission has compiled a bulletin showing the miles of railroad in the United States on which the block signal system was in use on January 1, 1913. This bulletin also contains tables showing the kind of automatic signals used and the methods and apparatus employed with the manual block system.

The total mileage in the United States operated by the block system on January 1, 1913, was 83,949.9. Of this total, 22,218.8 miles were automatic and 61,731.0 miles were manual.

Comparing the figures contained in this bulletin with the figures contained in the corresponding bulletin for January 1, 1912, which were compiled by the block signal and train control board, it appears that during 1912 there was an increase of 1,833 miles in the length of roads operated by the automatic block system and an increase of 5,656 miles in the length of roads operated by the manual block system, or a total increase for the year of 7,540.1 miles of railroad operated under the block system.

Rolling Stock Inspection Criticised.

CHIEF INSPECTOR BELNAP, of the Commission, has made a report to that body on the defects in the freight equipment and locomotives of the railroads. These defects, it is pointed out, are mostly in the coupling mechanisms, air brakes, hand brakes, hand holds and safety rails.

The report states that of freight and passenger cars and locomotives inspected during the last fiscal year more than 61 per cent per thousand are defective, this being an apparent increase.

One paragraph of the report, which incidentally mentions that 10,385 persons were killed and 169,568 were injured during the last fiscal year, is as follows:

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"In many instances our inspectors have found that the only test made of the efficiency of the train brakes is one intended to show that the air is working throughout the train line. Under such a system of inspection the train crew has no means of knowing the actual condition of the air brakes. Such practices cannot be too severely condemned."

Chief Inspector Belnap makes the recommendation that the Commission take action to require the railroads to report twice a year the progress made in the equipment of their rolling stock.

The Chief Inspector has also made his report on the accident on the International Railway near Lockport, New York, on January 25th last. In this connection, he recommends a more general use of torpedoes. This accident, a rear-end collision between freight and passenger trains, resulted in the death of one passenger and one employe, and the injury of forty passengers and one employe. The passenger train consisted of two motor cars.

In his report, Mr. Belnap said:

"Short intervals between trains as were enjoyed by Motorman Mack do not furnish opportunity for adequate rest, and employes working under such conditions can not be considered as having had the rest necessary to enable them to perform their duties in the best possible manner. To provide proper safety, interrupted service of this character, covering such a length of time as existed in this case, should not be required or permitted.

"The rules of the International Railway do not require the use of torpedoes unless the view of an approaching train is obscured by fog, stormy weather, or in some other manner. Had the rules required their use under all conditions, and had they been obeyed, it is probable that if Motorman Mack was asleep the detonation of the torpedoes would have awakened him in time to enable him to bring his train to a stop and avert the collision. In the endeavor to secure the maximum degree of safety, the rules should require the use of torpedoes under all conditions."

Recent Decisions.

DURING the past month the carriers have been upheld in a number of important decisions by the Commission. Track storage charges made by the Long Island Railroad Company of Brooklyn and complained of as unreasonable by the Wholesale Produce Dealers' Association, have been declared fair. The dealers had avoided double drayage charges by selling their goods direct from the cars to the retailers.

A complaint filed by the St. Louis Blast Furnace Company against the Louisville and Nashville and other carriers, charging that excessive rates were exacted on shipments of coke from points in Virginia, West Virginia and Pennsylvania to Missouri, has been dismissed by the Commission. The Commission has also held as reasonable the withdrawal of joint rates on grain, grain products and seed from certain Minneapolis and St. Louis railroad stations west of Hanley Falls, Minn., via Minnesota Transfer and the Chicago, St. Paul, Minneapolis and Omaha road. It was found that the continuance of this route would reduce the revenue of the principal roads from one half to four cents per hundred pounds with an additional terminal expense at Minnesota Transfer. Writing the decision of the Commission, Chairman Clark says:

"In view of the continuance of the joint rates via Hanley Falls we cannot find that Duluth will be subjected to unjust discrimination by the withdrawal of the route via Minnesota Transfer. If, prior to the establishment of the joint rates via Minnesota Transfer, Minneapolis had prayed that they be prescribed, it would have been obliged to show that it was subjected to undue discrimination and that the Great Northern could be compelled to join in a through route via Minnesota Transfer, including substantially less than its entire line between the terminal of the through route, instead of taking the traffic at Hanley Falls."

Cement rates from points in Missouri and Texas to Little Rock, Ark., complained of by the Little Rock Chamber of Commerce have been upheld by the Commission, who, in its disposition of the case, discloses a new method pursued by shippers in their attempt to force railroads to reduce their rates. The decision says:

"It was shown that the major portion of the cement now used in Little Rock comes from the Kansas gas belt, principally from Iola, Kan., at a rate of 17 cents per 100 pounds, and that comparatively little cement moves to Little Rock from any Missouri or Texas points. It is a fair inference from the record that the main object of the endeavor to obtain lower rates from St. Louis or from Texas points is to force lower rates from the Kansas gas belt."

The custom of the transcontinental railroads to charge higher rates on oiled, greased or waxed wrapping paper than upon the same paper plain, has been upheld by the Commission. The queston was raised by the Robertson Paper Co., of Bellows Falls, Vt., which ships to Pacific Coast points. The rates to which complaint was made but which are sustained by the Commission are 75 cents on plain manila wrapping paper, 90 cents on the same when oiled or greased and $1.20 when waxed.

The Commission has decided that the proposed increases in rates of pig iron from Michigan upper peninsula, and Wisconsin to Missouri River rate points are unreasonable.

In determining the pig iron rates in the Michigan upper peninsular district, the Commission holds that the proposed increase of $1.09 per ton is entirely unwarranted. The decision says:

"We have reached the conclusion that the present rate from the northern furnaces to Missouri River rate territory, may properly be advanced. We find, however, that the rate of $4.16 to Kansas City, as proposed by the respondents is unreasonably high and should not exceed $3.58 a ton from Duluth, Ashland, Chocolay, Manistique, Newberry and the other northern points involved. The proposed rate of $3.58 a ton from those points to Omaha proposed by the respondents in the new schedule we also find to be excessive rate and we think it should not exceed $3.08 a ton. Such a rate from the northern points to Omaha as compared with the rate of $3.58 which we here fix from those points to Kansas City gives due recognition to the fact that the haul to Kansas City is about 200 miles longer than to Omaha.

The Commission is opposed to the proposed advance to 40,000 pounds of the minimum weight on ear corn, snap corn and corn in the shuck throughout the Southwest.

It finds reasonable, however, a flat minimum weight of the same amount, when standard 36-foot

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cars or larger are furnished. It has ordered the carriers to cancel suspended schedules providing for the increase and to maintain the present minimum weight rule on cars smaller than standard.

Beet sugar rates also are found to discriminate against beet sugar factories in Ohio and Michigan. Rates of the Louisville and Nashville, from Cincinnati and points northwest to Nnoxville and Chattanooga, are declared unreasonable when compared with rates from New York, Philadelphia, Baltimore and New Orleans. The rates of the carriers south of the Ohio River are ordered corrected according.

The complaint filed by the Montana Railroad Commission against the Northern Pacific Railway alleging that rates on carload of immigrant movables from Edmonds, N. D., to Shawmut, Mont., were unreasonable, has been upheld by the Commission. Reparation was ordered.

The Pennsylvania and other roads have been ordered to reduce their carload minimum of 10,000 pounds on chairs, n. o. s. set up, from Lewisburg, Pa., to Jersey City, N. J., to 8,000 pounds, the minimum which is applicable from other points. This decision was announced in the case of Josiah Partridge and Sons Company and others of Jersey City.

In the case of C. G. Justice Company against the Pennsylvania Railroad, the Commission held the charge of $5 per car for reconsigning carloads of green tomatoes at Altoona, Pa., to be unreasonable to the extent it exceeded $2 per car. The lower reconsignment charge was ordered into effect May 15.

The Commission also held to be unreasonable the proposed advance from $3 per car to $5 for switching grain and grain products between interchange tracks of the Rock Island and the mills of the Sheffield-King Company, Sheffield, Minn. A charge not exceeding $3 per loaded car and $1.50 on an empty car was held to be reasonable.

In the case of the Alfred Struck Company against the Louisville and Nashville and other railroads, the Commission held that a 30,000-pound minimum for a standard car loaded with doors and window frames, set up, shipped from Louisville, Ky., is unreasonable. The roads were instructed to fix a minimum of 10,000 pounds for a 36-foot car.

Railroads operating east of the Mississippi and north of the Ohio rivers in what is known as Official Classification territory, have been ordered by the Commission to reduce the classification of smokeless powder for rate making purposes. The decision was issued in the case of the United States against the Wharton and Northern and other railroads. The roads in this territory have been charging first class rates on carload shipments and double first class rates on less than carload. The Commission ordered the roads by May 15 to put into effect rates not exceeding second class on carloads with 20,000 pounds minimum, and one and one half first class, when in less than carloads.

A decision has been issued by the Commission holding to be reasonable the assessment of first class rates on printed advertising circulars, pamphlets, almanacs, etc., between points in Official Classification territory which embrace the stations north of the Ohio and east of the Mississippi rivers.

A complaint against these rates was made by the Proprietary Association of America, an association of manufacturers and jobbers of proprietary medicines. Their advertising matter is sent in less-than-carloads—bulks usually in packages weighing from 50 to 300 pounds, on which the first class rates are applied. The complainants contended that the value of these circulars is not more than $5 per 100 pounds and therefore the rates charged are excessive and the commodity should be accorded a fourth class rating. The complaint was dismissed.

Rate Suspensions.

AMONG recent rate suspensions by the Commission are the following: Advances in rates on grain products from stations in southern Illinois to Texas points, until August 23d; advances in the rates on ground iron ore from points in Alabama, Georgia and Tennessee to Boston, New York, Philadelphia and other points, until November 7th; cancellation of through rates on wool and mohair from north Pacific Coast points to Eastern points, until October 30th. This tariff was previously suspended from April 15th. Elimination of through rates on lumber and other commodities from north Pacific Coast points to Eastern points via Denver, until October 30th. These tariffs were originally suspended from December 31st. Advances in rates on coal in carloads from mines in Kentucky and West Virginia to Milwaukee, until July 23d.

The Shipment of Explosives.

THE need for more stringent regulations governing the transportation of explosives, has led the Commission to announce that it would hold a public hearing on this subject May 26th at Washington. Shippers and carriers have been requested to submit to the Commission such changes in existing regulations as they deem desirable. It is the purpose of the Commission to enforce regulations that will minimize the danger to life and property in the transportation of all dangerous commodities.

ELECTIONS AND APPOINTMENTS.

Executive.

Horace E. Andrews, director, Missouri, Kansas & Texas Railway.

J. J. Bernet, vice-president, Lake Shore & Michigan Southern, Lake Erie & Western, Cleveland, Cincinnati, Chicago & St. Louis, Michigan Central, Peoria & Eastern, Cincinnati Northern, Chicago, Indiana & Southern and the Indiana Harbor Belt. Headquarters, Chicago.

J. B. Berry, assistant to the president, Chicago, Rock Island & Pacific.

A. J. County, director, Long Island Railroad.

F. H. Davis, director, Missouri, Kansas & Texas Railway.

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C. B. Ferry, vice-president, Chicago, Milwaukee & St. Paul. Headquarters, New York.

A. T. Hardin, vice-president in charge of cooperation, maintenance and construction, New York Central & Hudson River and the Ottawa & New York. Headquarters, Grand Central Terminal, New York.

C. W. Harkness, director, Southern Pacific Company.

O. B. Huntsman, director, Texas & Pacific Railway.

H. L. Ingersoll, assistant to senior vice-president, New York Central Lines. Headquarters, New York.

L. F. Loree, director, Southern Pacific Company.

Lewis Lukes, assistant to president, Canadian Northern. Headquarters, Toronto, Ont.

Angus D. McDonald, vice-president and comptroller, Southern Pacific Company. Headquarters, New York.

William H. Manss, vice-president and general manager, Southern Settlement and Development Association. Headquarters, Baltimore.

J. P. Morgan, Jr., director, New York Central & Hudson River Railroad.

Percival Roberts, Jr., director, Long Island Railroad Co.

Finley J. Shepard, member executive committee, St. Louis, Iron Mountain and Southern Railroad, also director Texas & Pacific Railway.

M. W. Wells, assistant to president, Chicago, Terre Haute & Southeastern. Headquarters, Chicago.

C. N. Whitehead, assistant to president. Missouri, Kansas and Texas. Headquarters, St. Louis, Mo.

Joseph Wood, director, Pennsylvania Railroad.

Legal.

Joseph W. Jamison, general attorney, Missouri, Kansas & Texas. Headquarters, St. Louis, Mo.

H. A. Scandrett, interstate commerce attorney, Union Pacific, Oregon Short Line and Oregon-Washington Railroad & Navigation Company. Headquarters, Omaha, Neb.

Financial.

Frank Johnson, treasurer, Missouri, Kansas & Texas. Headquarters, St. Louis, Mo.

Carl Remington, secretary, Chesapeake & Ohio and the Hocking Valley. Headquarters, New York.

Accounting.

G. J. Bunting, assistant general auditor, Chicago, Milwaukee & St. Paul. Headquarters, Chicago.

M. A. Chambers, auditor and freight claim agent, Chicago, Memphis & Gulf Railroad. Headquarters, Dyersburg, Tenn.

E. C. Danforth, acting auditor and cashier, St. Joseph and Grand Island. Headquarters, St. Joseph.

R. N. Dudley, ticket auditor, Chicago, Milwaukee & St. Paul. Headquarters, Chicago.

Alfred S. Dutton, auditor of freight accounts, Detroit Terminal Railroad. Headquarters, Detroit, Mich.

W. M. Harvey, auditor of material accounts, Chicago, Milwaukee & St. Paul. Headquarters, Chicago.

A. D. McDonald, comptroller, Southern Pacific Company.

J. D. Nettleship, assistant general auditor, St. Louis & San Francisco. Headquarters, St. Louis, Mo.

W. P. Newton, general auditor, St. Louis & San Francisco. Headquarters, St. Louis.

W. C. Parker, general auditor, Chicago, Memphis & Gulf R. R. Headquarters, Chicago, Ill.

E. B. Pierce, auditor, Missouri, Kansas & Texas. Headquarters, St. Louis, Mo.

R. R. Richards, auditor of disbursements, Detroit Terminal Railroad. Headquarters, Detroit, Mich.

C. S. Snow, auditor, St. Louis, San Francisco & Texas, and the Ft. Worth & Rio Grande. Headquarters, Ft. Worth, Texas.

J. Welch, assistant general auditor, Chicago, Milwaukee & St. Paul. Headquarters, Chicago.

Engineering and Mechanical.

E. E. Adams, consulting engineer, Harriman Lines. Headquarters, New York.

A. S. Baldwin, chief engineer, Chicago, Memphis & Gulf R. R. Headquarters, Chicago, Ill.

M. K. Barnum, general superintendent of motive power, Chicago, Memphis & Gulf R. R. Headquarters, Chicago, Ill.

F. M. Bisbee, chief engineer, Western Lines, Atchison, Topeka, & Santa Fe. Headquarters, Amarillo, Texas.

G. E. Boyd, division engineer, Delaware, Lackawanna & Western Railroad. Headquarters, Buffalo, N. Y.

O. C. Breisch, master mechanic of locomotive fuel service, New Orleans, Texas & Mexico R. R. Headquarters, De Quincy, La.

N. E. Brooks, engineer maintenance of way, Western Lines, Canadian Pacific. Headquarters, Winnipeg, Man.

Daniel J. Brumley, engineer of maintenance of way, Illinois Central and the Yazoo & Mississippi Valley. Headquarters, Chicago, Ill.

W. S. Carter, superintendent of construction, Mississippi Northwestern R. R. Headquarters, Bilexi, Miss.

A. D. Case, engineer of structures, Boston & Albany. Headquarters, Boston, Mass.

G. M. Rice, division engineer, Chicago, Milwaukee & St. Paul. Headquarters, Spokane, Wash.

C. Chandler, assistant bridge engineer, Illinois Central. Headquarters, Chicago.

William D. Faucette, chief engineer, Seaboard Air Line.

C. F. W. Felt, chief engineer, Atchison, Topeka & Santa Fe Railway System. Headquarters, Chicago, Ill.

E. E. Finley, superintendent of maintenance of way, San Antonio & Aransas Pass Railway. Headquarters, Yoakum, Texas.

E. Fuller, master mechanic, Southern Railway. Headquarters, Charleston.

J. R. Greiner, master mechanic, San Pedro, Los Angeles & Salt Lake. Headquarters, Milford, Utah.

E. J. Harris, master mechanic, Missouri Division, Chicago, Rock Island & Pacific. Headquarters, Trenton, Mo.

Frank Hopper, master mechanic, Duluth, Win-

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nipeg & Pacific Ry. Headquarters, West Duluth, Minn.

Maro Johnson, engineer of bridges and buildings, Illinois Central and Yazoo & Mississippi Valley. Headquarters, Chicago, Ill.

W. L. Kellogg, superintendent of motive power, M. K. & T. Headquarters, Denison, Texas.

Samuel Lenzner, master car builder, Michigan Central. Headquarters, West Detroit, Mich.

L. F. Lonnbladh, engineer of maintenance of way, Missouri, Kansas and Texas Railway. Headquarters, Parsons, Kansas.

Samuel W. McClure, resident engineer, Lake Shore & Michigan Southern Ry. Headquarters, Erie, Pa.

L. J. McDonald, road foreman of equipment of sub-divisions 30, 30-A, and 31, Chicago, Rock Island & Pacific Railway. Headquarters, Elden, Iowa.

W. J. McLean, master mechanic, Kettle Valley Railroad. Headquarters, Penticton, B. C.

William Melland, roadmaster, St. Louis, Iron Mountain & Southern. Headquarters, Batesville, Ark.

Charles A. Morse, chief engineer, Chicago, Rock Island & Pacific. Headquarters, Chicago, Ill.

S. W. Mullinix, superintendent of shops, Rock Island Lines. Headquarters, Silvis, Ill.

Edward A. Park, superintendent of motive power and equipment, Peoria & Pekin Union. Headquarters, Peoria, Ill.

M. F. Reagan, road foreman of engines, New York Central and Hudson River Railroad. Headquarters, West Albany, N. Y.

J. C. Rhodes, master mechanic, Dakota Division, Chicago, Rock Island & Pacific. Headquarters, Estherville, Ia.

L. A. Richardson, mechanical superintendent, Third District, Chicago, Rock Island and Pacific Railway. Headquarters, El Reno, Okla.

J. H. Roach, assistant engineer of construction, Lake Shore & Michigan Southern. Headquarters, Cleveland, Ohio.

W. R. Roof, engineer of bridges and buildings, Chicago Great Western. Headquarters, Chicago.

R. A. Rutledge, chief engineer, Eastern Lines, Atchison, Topeka & Santa Fe. Headquarters, Topeka, Kansas.

J. E. Saunders, office engineer in signal department, Delaware, Lackawanna & Western. Headquarters, Hoboken, N. J.

J. W. Small, superintendent of motive power, Seaboard Air Line. Headquarters, Portsmouth, Va.

J. L. South, general yardmaster, Denison yards, M. K. & T.

William Frederick Steffens, assistant chief engineer, Chesapeake & Ohio, the Chesapeake & Ohio of Indiana and the Hocking Valley. Headquarters, Richmond, Va.

R. L. Stewart, master mechanic, Chicago Terminal and Illinois Divisions, Chicago, Rock Island & Pacific. Headquarters, Chicago.

C. M. Taylor, mechanical superintendent, Second District, Rock Island Lines. Headquarters, Topeka, Kansas.

Fred L. Thompson, engineer of construction, Yazoo & Mississippi Valley Railroad. Headquarters, Chicago, Ill.

A. P. Walker, division surveyor, Ontario Division, Canadian Pacific. Headquarters, Toronto, Ont.

C. E. Wickham, division engineer of the Utica and Syracuse Divisions, Delaware, Lackawanna & Western R. R. Headquarters, Binghamton, N. Y.

Operation.

A. T. Abbott, superintendent, Des Moines Valley Division, Chicago, Rock Island & Pacific. Headquarters, Des Moines.

Lewis W. Baldwin, superintendent of Kentucky Division, Illinois Central. Headquarters, Louisville, Ky.

M. K. Barnum, general superintendent motive power, Chicago, Memphis & Gulf Railroad. Headquarters, Chicago.

J. C. Barton, trainmaster, Atchison, Topeka & Santa Fe. Headquarters, Las Vegas, N. M.

George W. Berry, terminal superintendent, Illinois Central. Headquarters, Chicago.

Sheridan Bisbee, trainmaster, Boston and Albany R. R. Headquarters, Beacon Park, Allston, Mass.

F. R. Blunt, general manager, Palicios, San Antonio & Pecos Valley Railroad. Headquarters, Yoakum, Texas.

A. C. Brady, assistant superintendent, Dist. 2, Eastern Division, Canadian Pacific. Headquarters, Montreal, Que.

J. J. Breheny, trainmaster, Kansas Division, Chicago, Rock Island & Pacific Railway. Headquarters, Herington, Kansas.

J. H. Brinkerhoff, general superintendent, Belt Railway. Headquarters, Chicago.

C. E. Brower, superintendent, Brunswick Division, Atlanta, Birmingham & Atlantic. Headquarters, Fitzgerald, Ga.

Ira L. Burlingame, general manager, Terminal Railroad Association.

J. A. Christie, superintendent Arizona Division, Atchison, Topeka & Santa Fe Coast Lines. Headquarters, Needles, Cal.

J. O. Clapp, superintendent, Chicago, Memphis & Gulf R. R. Headquarters, Dyersburg, Tenn.

S. H. Clark, assistant superintendent, Boston and Albany Divisions, Boston & Albany R. R. Headquarters, Springfield.

G. C. Comstock, chief despatcher, M. K. & T. **Headquarters, Smithville, Texas.**

William Coughlin, general superintendent, Missouri, Oklahoma and Gulf. Headquarters, Muskogee, Okla.

Henry J. Curry, superintendent, Albany Division, Boston & Albany. Headquarters, Springfield, Mass.

J. M. Daly, general superintendent transportation, Chicago, Memphis & Gulf Railroad. Headquarters, Chicago.

George F. Dickson, superintendent, Georgia & Florida Railway. Headquarters, Douglas, Ga.

E. Dowling, assistant division superintendent, Atchison, Topeka & Santa Fe. Headquarters, Dodge City, Kansas.

F. J. Easley, assistant general manager, Third District, Chicago, Rock Island & Pacific. Headquarters, El Reno, Okla.

Alfred H. Egan, general superintendent, Yazoo & Mississippi Valley Railroad. Headquarters, Memphis, Tenn.

H. G. Evans, assistant superintendent, St. Louis and San Francisco. Headquarters, Francis, Okla.

Max Fielder, assistant superintendent, Arizona

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Eastern R. R. Headquarters, Globe, Ariz.

T. J. Foley, general manager, Chicago, Memphis & Gulf R. R. Headquarters, Chicago, Ill.

Charles Forrester, superintendent, Stratford Division, Grand Trunk. Headquarters, Stratford, Ont.

E. J. Gibson, superintendent, Iowa Division, Chicago, Rock Island & Pacific. Headquarters, Des Moines.

J. R. Hamilton, terminal trainmaster, Delaware, Lackawanna & Western. Headquarters, Buffalo, N. Y.

Patrick K. Hanley, trainmaster, Clinton, Havana and Decatur Districts, Illinois Central. Headquarters, Clinton, Ill.

F. J. Hawn, superintendent, Ft. Worth Division, St. Louis Southwestern of Texas. Headquarters, Mt. Pleasant, Texas.

J. F. Hickey, superintendent, Smithville District. Missouri, Kansas & Texas. Headquarters, Smithville, Texas.

Fred Hooker, superintendent of locomotive fuel service, St. Louis, Brownsville & Mexico. Headquarters, Kingsville, Texas.

B. G. Horton, superintendent of locomotive fuel service, New Orleans, Texas & Mexico. Headquarters, De Quincy, La.

W. D. Jenkins, inspector of transportation and stations of the International & Great Northern Railway, and the Texas & Pacific Railway. Headquarters, New Orleans, La.

H. E. Jones, assistant superintendent, San Antonio & Aransas Pass. Headquarters, Yoakum, Texas.

M. J. Kelley, superintendent, Chicago, West Pullman & Southern. Headquarters, Chicago.

W. L. Kellogg, superintendent, motive power, M. K. & T. Railway of Texas. Headquarters, Denison, Texas.

William E. Morris, general manager, Denver, Northwestern & Pacific. Headquarters, Denver, Colo.

William Mosby, superintendent of transportation, St. Louis Southwestern. Headquarters, Tyler, Texas.

John C. Muir, general superintendent, Chicago, Terre Haute & Southeastern Ry. Headquarters, Terre Haute, Ind.

M. A. Phillips, secretary to manager, Queen and Crescent Dispatch.

J. P. Pickering, superintendent of car service, Rock Island Lines. Headquarters, Chicago.

J. F. Porterfield, general superintendent, Chicago, Memphis & Gulf Railroad. Headquarters, New Orleans, La.

E. Richards, superintendent, St. Louis Southwestern Railway. Headquarters, Pine Bluff, Ark.

J. H. Rightmeyer, superintendent and car accountant, Kentucky and Indiana Terminal Railroad. Headquarters, Louisville, Ky.

D. H. Ryan, assistant superintendent, Dist. 1, Atlantic Division, Canadian Pacific. Headquarters, St. John, N. B.

Arthur B. Shafer, assistant superintendent, New York, Susquehanna & Western and the Wilkes-Barre & Eastern. Headquarters, Jersey City, N. J.

C. F. Smith, superintendent, Montana Division, Oregon Short Line. Headquarters, Pocatello, Idaho.

R. W. Stevens, superintendent, Chicago & Western Indiana. Headquarters, Chicago.

O. Tefteller, superintendent of locomotive fuel service, St. Louis, Brownsville & Mexico. Headquarters, Kingsville, Texas.

H. P. Thrall, inspector of transportation service, Southern Pacific Company. Headquarters, San Francisco, Cal.

R. H. Tuttle, superintendent, Albuquerque Division, Atchison, Topeka & Santa Fe Coast Lines.

W. H. Wallace, trainmaster, Pere Marquette Railroad. Headquarters, Plymouth, Mich.

J. M. Warner, general manager, Chicago & Western Indiana. Headquarters, Chicago.

B. Weeks, superintendent telegraph, Chicago, Memphis & Gulf Railroad. Headquarters, Memphis, Tenn.

Hugh Wilson, assistant superintendent, Northwestern Pacific Railroad.

Traffic.

C. M. Agnew, traveling freight agent, the Southern. Headquarters, Omaha, Nebraska.

D. W. Agnew, commercial agent, Georgia Southern & Florida. Headquarters, Valdosta, Ga.

W. A. Barrows, assistant general freight agent, Boston and Albany. Headquarters, Boston, Mass.

George A. Bergen, coal traffic manager, Erie Railroad. Headquarters, New York City.

W. J. Berger, general agent, passenger department, Chicago, Burlington & Quincy. Headquarters, New York.

A. C. Bernard, chief clerk in freight offices, Illinois Central. Headquarters, Pittsburgh, Pa.

George A. Blair, assistant freight traffic manager, Chicago, Milwaukee & St. Paul. Headquarters, Chicago, Ill.

Warren Brown, general agent, El Paso & Southwestern. Headquarters, Memphis, Tenn.

William Callanan, division freight agent, Boston & Albany. Headquarters, Worcester, Mass.

W. T. Carroll, assistant freight auditor, Chicago, Milwaukee & St. Paul.

M. A. Chambers, auditor and freight claims agent, Chicago, Memphis and Gulf. Headquarters, Dyersburg, Tenn.

T. P. Clemow, general agent, Great Northern. Headquarters, Billings, Mont.

E. B. Coolidge, general coal and ore agent, Wheeling & Lake Erie. Headquarters, Cleveland, Ohio.

R. H. Crozier, assistant general passenger agent, Spokane, Portland & Seattle, Oregon Electric, Oregon Trunk and United Railways. Headquarters, Portland, Oregon.

C. T. Dabney, soliciting freight agent, Georgia Southern & Florida. Headquarters, Cincinnati, Ohio.

R. H. DeTreville, city passenger and ticket agent, Louisville and Nashville. Headquarters, Evansville, Ind.

W. C. Elmer, traveling passenger agent, Canadian Pacific Railway. Headquarters, Toronto, Ont.

W. H. Emerson, acting freight claim agent, the Chicago & Eastern Illinois. Headquarters, Auburn Park, (Chicago), Ill.

A. Engelhardt, traveling freight agent, Delaware & Hudson Company. Headquarters, Pittsburgh, Pa.

F. H. Erhart, traveling freight agent, Illinois Central and the Yazoo & Mississippi Valley. Headquarters, Kansas City, Mo.

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Charles Fairbanks, ticket agent, the Erie and Wabash and Nickel Plate Roads. Headquarters, Buffalo, N. Y.

Herbert L. Fairfield, supervisor of mails. Central of Georgia. Headquarters, Chicago, Ill.

J. E. Ford, general agent, Tonapah & Tidewater. Headquarters, Los Angeles, Cal.

George W. Frank, soliciting freight agent, Cincinnati, New Orleans & Texas Pacific. Headquarters, Cincinnati, Ohio.

H. T. Gilstrap, freight and passenger agent, Tonapah & Tidewater. Headquarters, Goldfield, Nevada.

C. Hanson, joint live stock agent, Texas & Pacific and the International & Great Northern. Headquarters, Ft. Worth.

E. L. Hare, chief clerk, general passenger office, Texas Midland. Headquarters, Terrell, Texas.

Archie F. Havekott, passenger agent, Chicago, Great Western. Headquarters, Oelwein, Ia.

L. Hawkins, chief clerk, freight department, Northern Pacific. Headquarters, Duluth.

George B. Haynes, general passenger agent, Chicago, Milwaukee & St. Paul. Headquarters, Chicago, Ill.

C. J. Helber, general agent, Wabash. Headquarters, Denver.

Wm. Henderson, soliciting freight agent, Georgia Southern & Florida. Headquarters, Macon, Ga.

George J. Holder, traveling freight agent, Lake Erie & Western. Headquarters, Spokane, Wash.

George B. Hugel, soliciting freight agent, Denver & Rio Grande and the Western Pacific. Headquarters, Chicago, Ill.

Charles E. Jenney, city passenger agent and ticket agent, Grand Trunk. Headquarters, Toronto, Ont.

C. J. Jones, general freight agent, Southern Pacific. Headquarters, San Francisco, Cal.

E. A. Kean, traveling freight agent, Missouri and Northern Arkansas. Headquarters, Kansas City.

Robert F. Kelley, general freight and passenger agent, Wheeling and Lake Erie Railroad. Headquarters, Cleveland.

Garnett King, general agent, El Paso & Southwestern System and the Morenci Southern Railway. Headquarters, St. Louis, Mo.

George W. Leahy, traveling freight agent, Baltimore and Ohio Railroad. Headquarters, Louisville, Ky.

E. M. Linzee, milk agent, Chicago & Alton. Headquarters, Springfield, Ill.

K. E. Long, contracting freight agent, Delaware, Lackawanna & Western. Headquarters, Chicago, Ill.

C. D. Lowe, assistant live stock agent, Southern Pacific. Headquarters, Chattanooga, Tenn.

Daniel J. McCarroll, soliciting freight agent, Buffalo, Rochester & Pittsburgh. Headquarters, Rochester, N. Y.

L. J. McFaul, district freight and passenger agent, Southern Pacific. Headquarters, Salt Lake City, Utah.

T. B. McGill, contracting freight agent, Union Pacific. Headquarters, Chicago, Ill.

T. J. McRoberts, assistant general passenger agent, Wheeling & Lake Erie. Headquarters, Cleveland.

S. A. Martin, traveling freight agent, Kansas City Southern Railway. Headquarters, Shreveport, La.

M. A. Metcher, city passenger agent, Chicago Great Western. Headquarters, Pittsburgh, Pa.

George L. Moore, division freight agent, Texas & Pacific and the International & Great Northern. Headquarters, Ft. Worth, Texas.

David Murray, ticket agent, Louisville and Nashville. Headquarters, Nashville, Tenn.

W. H. Mustaine, traveling passenger agent, Louisville & Nashville. Headquarters, Nashville, Tenn.

Ed. Naylor, assistant city ticket agent, International and Great Northern. Headquarters, Houston, Texas.

D. E. Peterson, city passenger and ticket agent, Chicago Great Western Railroad. Headquarters, Des Moines, Iowa.

W. R. Pillsbury, soliciting freight agent, G. C. & S. F. Headquarters, Houston, Texas.

W. E. Prendergast, general freight agent, Chicago, Milwaukee and St. Paul. Headquarters, Chicago.

W. A. Ragel, charge of overcharge claims, Chicago & Eastern Illinois. Headquarters, Auburn Park, (Chicago), Ill.

Robert Ralston, traveling freight agent, Cincinnati, New Orleans & Texas Pacific. Headquarters, Cincinnati, Ohio.

C. A. Rouse, general agent, Erie Despatch. Headquarters, Indianapolis, Ind.

Frederick H. St. Goar, traveling freight and passenger agent, Western Pacific. Headquarters, San Jose, Cal.

M. E. Schnell, district passenger agent, Chicago, Great Western. Headquarters, Des Moines, Iowa.

E. G. Seidle, contracting freight agent, Illinois Central. Headquarters, Pittsburgh, Pa.

D. R. Simpson, chief clerk, general passenger officio, Texas Midland. Headquarters, Terrell, Texas.

Walter Sorrell, live stock agent, Southern Railway. Headquarters, Greensboro, N. C.

E. C. Spencer, general agent, freight department, Kansas City Southern Railway. Headquarters, Beaumont, Texas.

H. C. Strohm, traveling passenger agent, Baltimore & Ohio. Headquarters, Omaha, Neb.

B. A. Sturdevant, claim agent, the Alton. Headquarters, Springfield.

Morris F. Walters, contracting freight agent, Missouri Pacific. Headquarters, Pittsburgh.

M. E. Whittington, traveling representative, Texas Midland. Headquarters, Paris, Texas.

Lionel C. Wolfe, city passenger agent, Louisville & Nashville. Headquarters, Louisville.

W. M. Wood, traveling passenger agent, Louisville & Nashville. Headquarters, Evansville, Ind.

J. J. Woodis, eastbound agent, Boston & Albany. Headquarters, Boston, Mass.

Industrial.

M. C. Bailey, commercial agent, Texas & Pacific and the International & Great Northern. Headquarters, Oklahoma City, Okla.

Prof. E. R. Bennett, horticulturist, Rock Island Lines.

W. M. Campion, commercial agent, Carolina.

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Clinchfield & Ohio. Headquarters, Cincinnati, Ohio.

J. C. Carey, commercial agent, Toledo, St. Louis & Western. Headquarters, Memphis, Tenn.

C. H. Drinkwater, commercial agent, Delaware, Lackawanna & Western Railroad. Headquarters, Minneapolis, Minn.

E. C. Ferguson, commercial agent, Toledo, St. Louis & Western Railway. Headquarters, Kansas City, Mo.

J. B. Keefe, industrial commissioner, Delaware, Lackawanna & Western Railroad. Headquarters, New York City.

J. D. Lund, commercial agent, Wabash. Headquarters, Cincinnati.

Edward Morgan, commercial agent, Baltimore and Ohio Railroad. Headquarters, Birmingham, Ala.

L. W. Mosher, commercial agent, Missouri, Kansas & Texas. Headquarters, Oklahoma City, Okla.

Martin L. Schultz, commercial agent, Missouri and Northern Arkansas Railroad. Headquarters, Marquette Building, Chicago.

Z. P. Smith, traveling immigration agent, land and industrial department, Southern Railway. Headquarters, St. Louis.

J. C. Walker, commercial agent, Kansas City Southern. Headquarters, Beaumont, Texas.

Purchasing.

E. B. Dailey, assistant to director of purchases, Southern Pacific Company. Headquarters, New York City.

Miscellaneous.

A. J. Blaisdell, tourist agent, Canadian Pacific.

Ernest Clapp, chief special agent, Georgia, Southern & Florida.

G. G. Dowdall, M.D., chief surgeon, Chicago, Memphis & Gulf Railroad. Headquarters, Chicago.

B. T. Heed, advertising agent, Frisco Lines. Headquarters, St. Louis.

T. T. Keliher, chief special agent, Chicago, Memphis & Gulf R. R. Headquarters, Chicago, Ill.

Felix Koch, mechanical engineer, Pressed Steel Car Company.

Charles A. Lindstrom, assistant to president, Pressed Steel Car Company. Headquarters, Farmers' Bank Building, Pittsburgh, Pa.

B. D. Lockwood, chief engineer, Pressed Steel Car Company.

J. F. Streib, assistant chief engineer, Pressed Steel Car Company.

Fred W. Sweeney, chief examiner of carriers' accounts, Interstate Commerce Commission.

J. G. Wilson, interstate commerce attorney, Southern Pacific Lines. Headquarters, New York.

Safety.

Marcus A. Dow, general safety agent, New York Central Lines. Headquarters, New York City.

RESIGNATIONS.

Executive.

B. S. Josselyn, president, Portland Railway, Light and Power Company.

Lewis Cass Ledyard, director, New York, New Haven & Hartford.

E. H. McHenry, vice-president in charge of engineering department, New York, New Haven & Hartford.

William Mahl, vice-president and comptroller, Southern Pacific Company.

C. E. Schaff, vice-president, New York Central System.

Legal.

Lee W. Hagerman, general attorney, State of Missouri, for Missouri, Kansas & Texas Railway.

James Stuart Mackie, secretary, Chesapeake & Ohio Railroad, and the Hocking Valley Railroad.

Accounting

T. B. Dixcy, general auditor, St. Louis & San Francisco R. R.

T. O. Edwards, auditor, Missouri, Kansas & Texas Railway.

Frank J. Lawlor, chief clerk, auditing department, Chicago and Eastern Illinois R. R. Co.

E. B. Pierce, auditor, St. Louis, San Francisco & Texas Ry.

Engineering and Mechanical.

C. C. Blood, office engineer, Portland, Eugene & Eastern Railway.

James T. Dougherty, engineer, Pennsylvania Railroad.

W. H. Foster, master mechanic, Hudson Division, New York Central and Hudson River Railway.

Frank Hopper, master mechanic, Dakota Division, Chicago, Rock Island & Pacific Ry.

John D. Isaacs, consulting engineer, Harriman Lines.

J. W. Moore, roadmaster, Louisiana Lines, Southern Pacific Co.

J. F. Morrow, foreman, Rio Grande shops.

C. A. Morse, chief engineer, Atchison, Topeka & Santa Fe System.

B. E. Mosher, roadmaster, I. & G. N.

A. J. Poole, superintendent of motive power, Seaboard Air Line.

D. C. Ross, master car builder, Michigan Central.

J. E. Saunders, assistant signal engineer, Atchison, Topeka & Santa Fe Ry.

G. W. Seidel, superintendent of shops, Rock Island Lines.

C. A. Seley, mechanical engineer, Rock Island Lines.

W. F. Steffens, engineer of structures, Boston & Albany R. R.

H. M. Taylor, director of construction, National Railways of Mexico.

T. M. Vickers, master mechanic, Salt Lake Division, San Pedro, Los Angeles & Salt Lake Railroad.

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Operation.

Ambrose T. Abbott, superintendent, Iowa Division, Rock Island.
W. R. Armstrong, superintendent, Montana Division, Oregon Short Line.
George W. Berry, general superintendent, Yazoo and Mississippi Valley Road.
J. H. Brinkerhoff, terminal superintendent, Illinois Central.
J. D. Chisholm, trainmaster, Toledo District, Pere Marquette.
W. B. Denham, general manager, Georgia & Florida Railway.
E. J. Gibson, superintendent, Albuquerque Division, Atchison, Topeka & Santa Fe Railway.
T. H. Hayden, superintendent and car accountant, Kentucky & Indiana Terminal Railroad.
D. F. Kirkland, superintendent, Georgia & Florida Railway.
Adolph Moritz, division superintendent, Atlanta, Birmingham & Atlantic R. R.
B. R. Swearinger, general yardmaster, Denison yards, Missouri, Kansas & Texas.

Traffic.

J. T. Baird, traveling freight agent, Seaboard Air Line.
S. W. Barnes, general agent, Tonopah & Tidewater.
George A. Blair, general traffic manager, Chicago & Alton.
J. L. Boyd, general agent, freight department, Kansas City Southern Railway.
J. J. Brignall, traveling passenger agent, Canadian Pacific Railway.
J. L. Chapman, contracting freight agent, Illinois Central.
R. C. Cromley, passenger and ticket agent, the Wabash and the Minneapolis & St. Louis Roads.
T. J. Cumming, commercial agent, Georgia Southern & Florida.
Gordon Edwards, traveling freight agent, Delaware & Hudson Company.
Edward Emery, traveling passenger agent, Baltimore & Ohio.
W. A. Hammer, soliciting freight agent, Buffalo, Rochester & Pittsburgh Ry.
H. C. Harbison, city passenger agent, Chicago & Great Western.
J. I. Hazzard, general agent, El Paso & Southwestern System and the Morenci Southern Railway.
Harry Langmead, traveling freight agent, Queen & Crescent Route.
J. M. Mandew, traveling passenger agent. Chicago & Alton.
Claude N. Martin, freight agent, Pennsylvania Railroad.
Willard E. Millspaugh, passenger agent, Vandalia-Pennsylvania.
W. R. Pilsbury, chief clerk to assistant general freight agent, Missouri, Kansas & Texas.
H. O. Post, city passenger agent, Chicago Great Western.
Arthur Purcell, claim agent. Chicago & Alton.
John S. Talbot, general western agent, Western Maryland.
R. F. Waller, assistant city ticket agent, M. K. & T.
Morris F. Walters, traveling freight agent, D. & R. G.
L. C. Wolfe, city passenger and ticket agent, Louisville and Nashville.

Industrial.

F. A. Eisminger, commercial agent, Toledo, St. Louis & Western Ry.
R. D. T. Hollowell, commercial agent, Carolina, Clinchfield & Ohio.
F. W. Hoover, industrial agent, Southern Pacific Company.

Miscellaneous.

Charles A. Lutz, chief of division of carriers' accounts, Interstate Commerce Commission.
John F. Penn, chief of the special agents, Georgia, Southern and Florida.

ORGANIZATION NOTES.

Chicago Traffic Club's New President.

GUY S. McCABE, general western freight agent of the Pennsylvania Railroad, has been unanimously elected president of the Traffic Club of Chicago. Mr. McCabe is a charter member of the Club, and from the first has been one of the most active in promoting its continuous growth and welfare. He served as chairman of the House Committee in 1909-1910, and for the past three years has been secretary.

He was born July 23, 1873, at Sewickley, Pa., and began his railway service in 1889 as clerk in the general freight office of the Pittsburgh, Cincinnati and St. Louis, and the Chicago, St. Louis and Pittsburgh, afterward consolidated as the Pittsburgh, Chicago, Cincinnati and St. Louis Railway, at Columbus, O. For two years he was clerk in the division freight office at Richmond, Ind., from 1896 to 1903, traveling freight agent, 1903 to April 1, 1908, division freight agent at Richmond, and from April 1, 1908, to May 31, 1910, general western and division freight agent at Chicago. On June 1, 1910, he was appointed to his present position as general western and di-

GUY S. McCABE, RECENTLY ELECTED PRESIDENT OF THE CHICAGO TRAFFIC CLUB.

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vision freight agent of the Pennsylvania Company in charge of the Chicago terminal division.

Other officers elected were: First, vice-president, W. M. Hopkins, manager traffic department, Chicago Board of Trade; second vice-president, Frank W. Smith, member Uniform Classification Committee; third vice-president, L. Richards, traffic manager, Quaker Oats Company; secretary, W. H. Wharton, commercial agent, Nashville, Chattanooga and St. Louis Railway; treasurer, Charles B. Hopper, general freight agent, Goodrich Transit Company.

Meeting of Western Classification Committee.—During the past month the Western Classification Committee has been holding a series of meetings in St. Louis for the purpose of readjusting various freight classifications. Among those present were a large number of shippers, railway officials from various parts of the territory affected, and representatives of State and Interstate Commissions. This is the first meeting of the Committee called in eighteen months and the docket to be disposed of included about 660 subjects, involving changes in freight classifications resulting in both advances and reductions in rates. All interested parties were given full opportunity to be heard.

Monthly Meeting of New York Railroad Club.—The regular monthly meeting of the New York Railroad Club, for April, occurred on the evening of the 18th and was addressed by William J. Cunningham, assistant professor of transportation, Harvard University, on: "The Administration of the State Railways of Prussia-Hesse." Mr. Cunningham's paper was based on personal observation and study.

Illinois Full Crew Bill Opposed.—Members of the executive committee of the Chicago Association of Commerce have adopted a resolution in which they express the opinion that the enactment of a bill now pending in the Illinois Senate would place upon the railroads operating under the provisions of the proposed act an unfair burden.

The proposed law provides that it will be illegal to run outside of yard limits any freight train consisting of fifty cars or more, excluding a caboose and engine, with less than a full crew, comprising a conductor, engineer, fireman, two brakemen and a flagman. There also is a rule that the crew on trains of less than fifty freight cars shall consist of a conductor, engineer, fireman, brakeman and flagman.

The bill further sets forth that it will be unlawful for a railroad to operate a passenger, mail or express train of five or more cars with a crew of less than an engineer, fireman, conductor, brakeman and flagman.

Illinois Organization Advocates New Shipping Laws.—The Illinois Consumers' and Shippers' Association, is advocating the enactment of laws in Illinois which will give greater protection to shippers and consumers. A statement issued by officials of the organization sets forth that the association is endeavoring to obtain needed regulations relative to the settlement of claims against railroads, weighing of cars, fees for attorneys, reciprocal demurrage, time movement and railroad incorporation. Statutes governing these matters, it is pointed out, are now in effect in Kansas, Oklahoma, Texas, Nebraska, Minnesota and various other States.

Meeting of General Baggage Agents.—At a meeting of the Western Association of General Baggage Agents, held in St. Louis last month, the following subjects docketed for the spring meeting were discussed:

Recommendation that size, weight and free allowance on emigrant, around-the-world and trans-Pacific baggage be the same as domestic baggage; sealing baggage; telegraphing for baggage; final action on resolution changing Article 3 of Constitution; question as to where line may be drawn in matter of handling public entertainment paraphernalia; discipline of train baggagemen; how and by whom administered; joint express messenger and train baggagemen; straight train baggagemen; for failure to make proper reports, mishandling United States mail, etc.; question of storing unclaimed baggage.

Meeting of Freight Traffic Officers.—At a recent meeting of the Executive Committee, American Association of Freight Traffic Officers, it was decided to hold the ninth regular annual meeting at Washington, D.C., Thursday and Friday, May 15th and 16th. Members are requested to forward the secretary-treasurer promptly a list of subjects which they may wish considered and same will be tabulated and distributed to members (in accordance with provision of section 12 of the by-laws), not later than April 16th, in connection with the final call for the meeting.

Arrangements will be made for a banquet on the evening of May 15th, and it is hoped that all members who can arrange to do so will honor the affair with their presence.

Meeting of the American Society of Mechanical Engineers.—On April 8th, the American Society of Mechanical Engineers held a meeting for the purpose of discussing steel passenger car design. The meeting brought before the Society the latest developments of the art by specialists in each feature of steel passenger car design.

The Terminal Railroad Association Election in St. Louis.—At the annual meeting of the stockholders of the Terminal Railroad Association of St. Louis, held on April 15th, directors were elected as follows: C. E. Schaff, representing the Missouri, Kansas and Texas Railway Company; F. H. Britton, St. Louis Southwestern; B. F. Bush, Missouri Pacific; George E. Evans, Louisville and Nashville; W. C. Loree, Baltimore and Ohio Southwestern Railroad; Henry Miller, Wabash Railroad; A. M. Schoyer, Vandalia Railroad; B. A. Worthington, Chicago and Alton Railroad; W. C. Nixon, St. Louis and San Francisco; E. J. Pearson, St. Louis, Iron Mountain and Southern; Thomas C. Powell, Southern Railway; W. L. Park, Illinois Central Railroad; A. E. Sweet, Rock Island; J. Q. Van Winkle, Big Four; E. P. Bracken, Burlington; W. S. McChesney, Jr., Terminal Railroad Association.

At a meeting of the board held later in the day officers and committees were elected, as follows: Julius S. Walsh, chairman of the board; W. S. McChesney, Jr., president; I. L. Burlingame, general manager; C. A. Vinnedge,

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secretary and auditor; Julius S. Walsh, Jr., assistant secretary; Fred C. Daab, treasurer.

Finance Committee—B. A. Worthington, B. F. Bush, W. L. Park, Julius S. Walsh, chairman and ex-officio member.

Executive Committee—C. E. Schaff, T. C. Powell, Henry Miller, E. J. Pearson, George E. Evans, A. M. Schoyer, W. C. Nixon, W. S. McChesney, Jr., chairman and ex-officio member.

The board approved the recommendation of President McChesney and elected General Superintendent Burlingame as general manager. The office of general superintendent is abolished.

Railway Storekeepers to Meet.—Members of the Railway Storekeepers' Association will hold their tenth annual convention at the Hotel Sherman, Chicago, May 19th to 21st. A special committee has been appointed to prepare a book of standard rules governing store department practices. J. P. Murphy, Collinwood, Ohio, secretary of the organization.

Average Demurrage Plan for Canada.—The Canadian Manufacturers' Association, representing most of the large shippers of Canada, is preparing an application to the Board of Railway Commissioners for an order approving and making effective the average demurrage plan on all the Canadian roads under the jurisdiction of the Board. There is a widespread demand for the adoption of the plan. The applicants have made a study of the plan where it is in operation in the United States as a part of the national car rules and they claim that it works well there. The Board of Railway Commissioners has sent out a notice requiring the railways to show cause at the April hearing why an order should not be made calling for the publication of joint tariffs between points in Canada where such have not already been published has been struck off the calendar. No explanation is given for the action.

Meeting of the Railway Club of Pittsburgh.—At the monthly meeting of the Railway Club of Pittsburgh, held on April 25th, Walter V. Turner, chief engineer and P. H. Donovan, mechanical engineer of the Westinghouse Air Brake Company, read papers on the effect of changed operating conditions and modern rolling stock on the brake and what is being done to make this money saving or money losing apparatus as efficient as heretofore.

Meeting of St. Louis Railway Club.—At the monthly meeting of the St. Louis Railway Club, held on April 11th, J. R. Cavanaugh, superintendent of freight terminals of the Big Four Line at Indianapolis, delivered an address on: "Package Car, or the Handling of Less than Carload Freight." This is a subject of general interest to car accounting and transportation officers.

United States Commerce Association.—There has recently been organized at Chicago, an association known as the United States Commerce Association, whose object is to promote a practical knowledge of commerce, transportation and freight traffic efficiency, including not only domestic but export and import trade. This organization is to carry on research work without prejudice or regard to the special interests of railroads or industries, and to generally assist in the elevation of the traffic profession. It is the hope that the association will become a National Forum in which practical traffic men can trade their experience and technical knowledge with each other. The association has recently prepared a leaflet fully setting forth its object, membership, etc., which can be procured by addressing the United States Commerce Association, 39 West Adams Street, Chicago. It is asserted that all those interested in the increase and diffusion of a practical knowledge of interstate commerce, traffic work, trade and transportation, should become members of this organization.

Meeting of the Railway Development Association.—The annual meeting of the Railway Development Association will be held in Nashville, Tennessee on May 6th and 7th. The membership of this association is composed of the various departments, industrial, agricultural and immigration, of all American railroads. Its purposes are to develop America. The men who will be present at this meeting are trained experts who are making a scientific study of the resources and possibilities along their lines, and devising means by which they may be best exploited and developed.

Among the subjects that will be discussed at this meeting will be: "Agricultural Development," "Efficiency of Advertising," "Reclamation of Wet Lands by Drainage," "Prevention of Damage by Floods," "Operation of Special Trains in the Interest of Good Roads, Agriculture, etc."; "Immigration." "Relation of the Railroad to the New Settler," "The Efficiency of Centralized Plants," "Industrial Buildings, Warehouses, etc."; and "Industrial Development."

Dinner of New York Economic Club.—At a recent dinner of the New York Economic Club, held at the Hotel Astor on the evening, of April 29th, the subject: "Are Our Railroads Fairly Treated?" was discussed by the following prominent men: W. C. Brown, president of New York Central; A. B. Garretson, president of the Order of Railway Conductors of America; Benjamin F. Bush, president of the Missouri Pacific, and Prof. William Z. Ripley, of Harvard University.

Dinner of Pittsburgh Traffic Club.—At a dinner of the Pittsburgh Traffic Club, held on the evening of April 14th, an interesting lecture was delivered by H. B. Yergerson, on the details of steel making, under the title "From Mine to Mold." Moving pictures illustrated the address which was one of the most interesting ever delivered before this organization. The pictures showed steam shovels at work 250 feet below the surface and the loading of trains on five different levels. The great ore docks at Duluth and those at Mesabe were displayed in full operation and the mammoth freighters were shown receiving their southbound freight of ore and returning with their great burdens of coal. All of the various details of the loading and unloading of the boats were displayed.

At the conclusion of the entertainment features a closed meeting was held for members only, and the election of a Nominating Committee was

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made, comprising G. G. Herring, G. A., Southern Pacific Railway Company; F. A. Ogden, D. F. A., Jones & Laughlin Steel Company; C. L. Cordes, D. F. A., American Steel & Wire Company; Robert Main, D. F. A., Canadian Pacific Railway, Soo Line; L. C. Bihler, T. M., Carnegie Steel Company; C. S. Belsterling, T. M., American Bridge Company; J. C. Kimes, C. F. A., Baltimore & Ohio R. R. Co. This committee will select candidates for different offices to be voted upon at the Club's annual election, June next.

STATE COMMISSIONS.

California.—In a recent decision, the Railroad Commission holds that public utility rates fixed by contract cannot stand against rates fixed by the Railroad Commission. The principal points covered in the decision may be summarized as follows:

All contracts made by a public utility will not stand when this Commission has fixed rates, but this Commission may adopt the rates fixed by contract if made under fair conditions, as far as it may do so without bringing about discrimination, and it specifically instructs untilities that they are not to repudiate their contracts until the matter has been presented to this Commission.

In the matter of the preparation of monthly statements of selected commodities by all railroads operating within the State, the Commission has amended its general order No. 29 to the effect that such statements shall, in the future, be submitted annually, instead of monthly, and that the first statement under the amended order shall be for the period of October 1, 1912 to June 1, 1913, and annually thereafter for each fiscal year.

Colorado.—An appeal is to be lodged against an order of the State Railway Commission on which directs the railroads operating in the northern Colorado coal fields to reduce their rates on coal to Denver. This action has been decided upon as the result of a conference in Denver of the legal and traffic officials of the Chicago, Burlington & Quincy, and the Colorado & Southern Railroads.

By order of the Commission, the railroads are directed to put into effect, on April 20th, a new tariff reducing from 80 to 50 cents per ton, the rate on lump coal from the northern fields to Denver, and to place proportionately lower rates on mine run and slack.

Three years ago the Commission ordered the rates reduced in the case of the Colorado Consumers' League. The railroads carried the matter to the State Supreme Court, which upheld the Commission. This order in the Consumers' League case expired in May, 1912.

Iowa.—The Railroad Commission will hold a general rate and classification hearing at Des Moines on May 14th, and a special hearing on the subject of demurrage rules on May 13th. The questions to be considered are, proposed changes in the Iowa rules, to agree with the interstate rules now in effect, and a proposed increase in the demurrage charge from $1 to $3.

Illinois.—The Railroad and Warehouse Commission has entered an order restraining the Chicago, Milwaukee and St. Paul Railroad from increasing its tariff on coal by raising its rates for switching. Some time ago the St. Paul announced that it would increase its switching charges over its terminals at Chicago. This decision was immediately followed by the announcement from other roads that they would increase their rates in order to make up for the increase in switching charges they would have to pay when using the St. Paul's terminals. The State Commission says that the railroads must adjust their rates so that they shall not exceed the limit fixed in the tariff of August 1, 1911.

Proposed advances in grain by the Atchison and several other lines, have been suspended by the Commission until July 31st, next. A complaint against the contemplated increases was filed with the Interstate Commerce Commission some time ago and a decision on the question is expected from the latter tribunal within a short time. Continuances were granted by the Commission in a number of cases involving better protection at railroad grade crossings.

According to a report just issued by the Commission, there was a decrease of 46 fatalities on steam and electric roads in Illinois for the fiscal year ending June 30, 1912, as compared with the previous year, according to the report of the Illinois Railroad and Warehouse Commission. The report shows that 900 passengers, employes and other persons were killed on the steam roads, while 65 met death on electric lines, including elevated.

The total number of persons injured during the year on all passenger-carrying roads was 13,593, an increase of 1,729 over the previous year. Of this number, 1,095 were injured on the surface and electric lines and 12,498 were injured on the steam roads.

Louisiana.—As a result of an investigation by the Railroad Commission into numerous accidents that have occurred throughout the State during the past several years, the railroads have been ordered to show why an order shall not be issued requiring all railroads operating in Louisiana, except those less than twenty-five miles in length, or upon which only one train each way per day is operated, to operate their trains on an improved block system. It is not the intention of the Commission to prescribe what system shall be used but to develop some plan by which trains shall be kept at least three miles apart instead of under the present system of keeping them so many minutes apart.

The Commission has given notice that it will soon begin an extensive investigation regarding the necessity for a readjustment of rates on carloads and less than carloads, on petroleum and its products, between points in Louisiana.

Maryland.—The Public Service Commission has issued a ruling to the effect that the railroads must not sidetrack local passenger trains in Maryland to allow belated through passenger trains to pass. The railroad officials contend that the Commission has no authority to issue an order that might interfere with the running of its through trains engaged in interstate traffic. The Commission takes the ground that the time set on the schedule for the local train belongs to it when it is running on that time and not to a belated express train. In brief, that the

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rights of the passengers traveling wholly within the State are equal to those of the passengers without the State and that the railroad's time-table, in this respect, is its contract with its passengers.

The Commission has again heard arguments in the switching charge cases recently brought before Judge Duffy, of Baltimore, on injunction proceedings. The Court made the injunction permanent on many points which prevented the Commission from carrying out its order against the railroads.

All the railroads centering in Baltimore are involved.

According to a report filed with the Public Service Commission, the Western Maryland Railway Company has expended up to February 28th last, $14,330,667 in constructing its new line from Cumberland to Pittsburgh.

New York.—The Public Service Commission has approved the application of the New York Central, the Rome, Watertown & Ogdenburg, the Utica and Black River, the Oswego and Rome, the Carthage, Watertown and Sackets Harbor and the Niagara Falls branch and the Little Falls and Dolgeville railroad companies for leave to consolidate under the name of "The New York Central & Hudson River Railroad."

The capital stock of the corporation is $225,581,100.

Of 6,373 locomotives in service on railroads in New York, during the past year, 4,213 have been inspected by the representatives of the Public Service Commission, second district. Approximately ninety per cent of these were either on the road or available for service, the remainder being in the shops awaiting repairs.

With respect to unsatisfactory motive power conditions on the New York Central a year ago, due to labor troubles and a shortage of power, the Commission states that an agreement made then has been strictly followed as a result of which the conditions in question have been greatly improved and are now entirely satisfactory.

One would think, to listen to some New England denunciators of the New Haven road, that late trains and wrecks held the record on this system. The official record, however, does not bear out the attacks, and travelers from over the country say the New Haven is more on time than any other road.

The Public Service Commission of New York has compiled the figures on delayed passenger trains for the month of January.

The New York Central, out of 26,144 trains, had 18 per cent late, with an average lateness of all trains run of 5½ minutes.

The Erie, with 7,417 passenger trains, had 18 per cent late, and an average lateness of all trains run of 5.3 minutes.

The New York, New Haven & Hartford R. R. stands third on the list for the number of trains moved, and of its 5,432 passenger trains reported to the New York Public Service Commission, only 17 per cent were late in January, and the average lateness for all trains run was but 2.8 minutes.

Pennsylvania.—The State Railroad Commission has certified to the attorney general for court action complaints against the Erie Railroad Company. The practice of the company is to compel a passenger, from whom an excess charge of ten cents is collected on a train, to send the cash fare slips representing the amount of the excess charge to the New York office for redemption.

The Commission recommended that this fare be returned to the passenger upon presentation of the coupon to any of the agencies of the company in this State. The Erie replied that it did not propose to change its practice.

Texas.—The State Railroad Commission has issued an order amending the rules and regulations governing the switching of loaded cars. It also applies on intercity movements of empty cars for purposes other than loading or unloading. The amendment reads:

"Terminal switching service shall, in all cases, be furnished when demanded at the charges provided in this tariff and regardless of whether the freight transported, or to be transported, is of carload or less than carload quantity, provided the aggregate weight is not less than 6,000 pounds, and said charges shall in all cases, be absorbed by the line or lines of railway performing the transportation haul on the freight switched out of the freight charges accruing under the authorized freight rate applicable for the transportation of the commodity or commodities shipped between origin and destination stations, provided that the net transportation charge shall not in any case, by such absorption be reduced below $7.50 per car. This minimum of $7.50 per car will not be observed where the transportation haul is performed by the switching line."

LEGISLATION.

National.—As reported elsewhere, the bulk of the time of our national legislation during the past month, particularly in the House of Representatives, was given to the tariff bill, which, in general public interest, transcends all other matters.

Some legislation, however, has been proposed or passed of interest to railroad officials. A bill which has recently become a law, and which imposes a maximum fine of $5,000 or imprisonment for not more than ten years for any person convicted of unlawfully breaking into any railway car containing interstate shipments or of stealing or obtaining by fraud or deception, from any car depot, platform, vessel or wharf, any freight which constitutes or is a part of any interstate or foreign shipment, should make far more difficult and dangerous, in the future, the operations of car and depot thieves.

In the House of Representatives, Representative Sims, of Tennessee has re-introduced his bill providing for the repeal of the "free tolls" provision of the Panama Canal Act. Several bills amending the Sherman law are in contemplation, and one has already been introduced by Representative Baker, of California, and has been referred to the judiciary committee. It is not expected, however, that interstate legislation will engage much of the attention of the extra session.

The Raker bill would specifically define the law and public policy of the Government with respect to combinations. Combinations in restraint of trade would be defined as arrangements without exception, limitation or qualification, be-

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tween two or more persons which in any way or to any extent limit competition or the freedom to compete a trade, or which create a dangerous probability "that the totality of a national trade shall be decreased for private profit.' Such combinations in which unlawful means are used to further the purpose of combination would be classed as conspiracies.

Representative Sims has also introduced a bill providing for the abolition of the Commerce Court. Some action will have to be taken regarding this Court soon. The appropriation continuing the Court expires on July 1st next, after which it goes out of existence for lack of subsistence unless provision is made extending its life. Meanwhile, no arrangements have been made by law as to what court is to have the jurisdiction over the legal matters now coming up before the present Commerce Court. The whole matter apparently rests with President Wilson as it is likely that his position will have an important influence as to whether the Court shall be continued or abolished.

In the Senate, Senator Newlands, of Nevada, has announced that he intends to push his river regulation and flood provision bill which is now pending in Congress, to an early date. Senator Newlands has also re-introduced his interstate trade commission bill which has been referred to in previous issues of the "Railway World."

Senator Cummings has introduced a bill designed to prevent interstate railroads from limiting their liability in case of loss of shipments. It was prepared to meet recent decisions of the Supreme Court, which have the effect of limiting liability if lower rates are accepted by shippers.

Senator Gronna has introduced and had referred to the Committee on Interstate Commerce, a bill providing for a further amendment of the Interstate Commerce Act, by granting the Commission power to regulate the speed with which railroads must deliver freight.

The Southerland workingmen's compensation bill has also been introduced in the Senate, with a provision for a minimum compensation of $25 per month and no fixed maximum. Many of the House amendments of the original measure prepared by the Southerland Commission are included.

In a resolution adopted by the Senate, the Secretary of the Treasury is required to report whether express companies have been paid by the Government for transporting government property over lines on railroads which have received land grants from the Government on the condition that all such property shall be conveyed at the cost of the roads.

Representative Henry, of Texas, has re-introduced a bill to amend the Sherman anti-trust law. He proposes three important changes. These include a provision to define more accurately the acts constituting trust or monopoly in restraint of trade, a second provision making all persons who conspire to monopolize trade guilty of a felony and punishable by imprisonment and a third provision nullifying the "rule of reason" written into the law by the Supreme Court of the United States.

Colorado.—A bill has been introduced in the Colorado Legislature which provides that all roads, with the exception of those of sixteen miles or less in length, shall equip their engines with headlights of not less than 1,200 candle power. The cost of the railroads is estimated at $160,000.

Connecticut.—The bill passed by the legislature, providing all railroad ticket agents to issue free tickets to the members of the legislature, and which was promptly vetoed by Governor Baldwin, failed to be repassed by a vote of 154 to 39.

Illinois.—The chairman of the Legislative Board of the Brotherhood of Locomotive Engineers, is seeking the enactment of a law to install high power headlights on engines in Illinois.

A resolution has been introduced into the Legislature, calling for an investigation of the affairs of the Illinois Central Railroad Company to determine exactly what percentage of the profits of that railroad's earnings is due to the State.

In the State Senate, a bill has been introduced to prepare for the building of a union freight and passenger station near the present Union Station and in substitution therefor. The proposed enabling act amends the present union station statute, adopted in 1874, to provide that companies formed for the purpose of building the projected union station may have $50,000,000 capitalization, instead of the present limit of $3,000,000. Senator O'Connor says that his bill is in the interest of the Pennsylvania, Burlington, St. Paul and Alton and incidentally of all roads concerned in case the Chicago authorities should compel construction of a great union station south of Twelfth street, near the Illinois Central terminal, in accordance with the so-called "city beautiful plan."

Massachusetts.—A bill establishing a new public service commission of five members having control of railroad, street railways, telegraph and telephone lines of the State, has been approved by the House Committee on Ways and Means. The bill abolishes the present railroad commission, and many of its provisions follow closely those of the Interstate Commerce Commission Act.

Missouri.—The Legislature has passed a bill abolishing the office of railroad commissioner and creating that of warehouse commissioner with a salary of $4,500. It was forced by a threat to withhold an appropriation for grain inspection which was then provided to the amount of $125,000.

Governor Major has signed a bill which requires foreign railroads to incorporate in Missouri as a condition of doing business in that State, and another requiring railroads to put three brakemen upon all freight trains of forty cars or more and a flagman and brakeman upon every passenger train of six coaches or more. The Governor takes the position that the bill requiring railroads to incorporate in Missouri does not, and cannot, consistently apply to foreign roads now doing business as in the State but only to roads which enter Missouri in the future. Apparently the legislative intent was to make this measure applicable to foreign roads now in the State. The aim of this bill, as indicated by arguments in its behalf, is that it is intended

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to prevent the roads from taking their cases into the federal courts for trial.

New York.—Three bills embodying the pledges made by the State platform of the progressive body to give additional powers to the Public Service Commission, have been introduced in the Legislature. They give the Commissions power similar to those exercised by the Interstate Commerce Commission over rate questions. They also propose to facilitate litigations involving decisions made by the Commissions.

The bills are also designed to bring railroad baggage and transfer companies under the direct jurisdiction of the commissions, by making them "common carriers," with a view to prohibiting such companies from charging exorbitant rates.

The Assembly has passed the Jones reciprocal demurrage bill, whereby the railroads are compelled to publish uniform demurrage rates and are to be charged back the same rates whenever they fail to deliver cars for shipments when ordered.

The Senate has adopted the Griffin concurrent resolution designed to submit to the voters of the State an amendment to the constitution permitting the enactment of a compulsory workmen's compensation law. The Griffin resolution would meet a recent decision by the Court of Appeals regarding the constitutionality of compulsory workmen's compensation legislation.

New Jersey.—A bill has been introduced in the Legislature, prohibiting a railroad from testing its engineers in the matter of signals without warning the engineers of the tests. This bill is vigorously opposed by the railroads who assert that an elementary and reasonable measure of efficiency and public protection will be destroyed if the bill is passed.

Pennsylvania.—A bill which was introduced in the Legislature for the purpose of licensing dining cars for the sale of liquors, has been defeated by a vote of 111 to 75.

New Hampshire.—The measure recommended by the Special Legislative Committee, which has been considering the railroad rate question in New Hampshire, has been rejected by the Legislature and the Committee has been instructed to report a new measure giving the Boston & Maine Railroad more liberal terms and the Railroad Commission more discretion in fixing rates. As reported by the committee, the bill would have required the Boston & Maine and the State to agree upon a new schedule of rates to be prepared by the Public Service Commission, and to go into effect July 1st of the present year, none of the rates to be in excess of those now charged. The resolution calling for a new bill was adopted 179 to 138.

Texas.—The Legislature at its recent session passed the following bills affecting railroads:

Making it a misdemeanor for railroad station agents to fail to bulletin properly the arrival and departure time of passenger trains authorizing the Missouri, Kansas & Texas to take over and operate several of its subsidiary lines; authorizing the Houston & Texas Central to purchase and operate the Hearne & Brazos Valley Railroad; authorizing the Texas & New Orleans to take over and operate the Burrs Berry, Browndel & Chester Railroad; authorizing the St. Louis Southwestern to take over the Stevensville North & South Texas Railroad; authorizing the Gulf, Colorado & Santa Fe to take over and operate its Pecos Valley lines; authorizing the El Paso Southwestern to take over and operate the El Paso & Northwestern Railroad; requiring railroads to equip all side tracks with derailing devices; extending the time for two years in which railroads may complete extensions of their lines as provided in their respective charters; a resolution directing the Attorney-General to investigate the St. Louis Southwestern Railroad's alleged violation of its charter provisions in not building an extension of its eastern Texas line from Lufkin to Crockett.

Governor Colquitt did not veto the Santa Fe consolidation bill to which he was opposed, but allowed it to become a law without his signature. He has, however, advised that attorney-general will notify the Santa Fe of whatever legal questions involved are dependent in their determination upon the result of a suit brought against the Missouri, Kansas & Texas in respect to its consolidation.

The same policy will be pursued if he decided to allow the Cotton Belt bill to become a law. He is of the opinion that the Santa Fe bill, as to lines consolidated, is less objectionable than was that of the Katy but the same question as to ownership of stocks and foreign railroad company, is involved.

Attorney-General B. F. Looney has drafted a bill which has for its purpose the prevention of the domination of Texas railroads by their outside ownership corporations, or parent lines. It is provided in the constitution of this State that no railroad company organized under Texas laws may consolidate with a company organized under the laws of any other State in the United States. The Texas statutes also require that all railroads in this State must be organized and operated under Texas charters. It has been held by the courts that the mere ownership of stocks or bonds of a Texas railroad by a foreign corporation does not violate the antimerger provision of the constitution.

LABOR.

The Inexhaustible Demands of Railway Labor.

THE labor situation, as indicated in another section of this issue, is rapidly assuming a threatening attitude and one which is giving railway managers the liveliest concern. Practically all classes of employes are clamoring for increased wages and with net earnings now insufficient to properly care for current demands and to attract the necessary capital to meet the constantly increasing demands of commerce, the point has apparently been reached where further compromise along these lines is impossible. The wage movements which now confront the Eastern carriers are probably more important than those of the engineers and firemen combined. Some hundred thousand conductors and trainmen on forty-three Eastern roads have made demands for increased wages and changes in working conditions. In spite of the fact that their wages were increased by $30,000,000 per annum in 1910,

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they now ask for an additional $17,000,000 or 20 per cent per annum.

These demands have received careful consideration on the part of the carriers involved, and have been refused for the reasons set forth in the following letter:

MAY 1st, 1913.

Mr. A. B. Garrettson,
President, Order of Railway Conductors,
Mr. W. G. Lee.
President, Brotherhood of Railroad Trainmen.
Gentlemen:

The wages and working conditions which you request would increase the pay of 100,000 conductors and trainmen of the railroads in the Eastern District—the 43 roads represented by the Conference Committee of Managers—for the service now rendered by approximately $17,000,000 or 20 per cent per annum. The increase would be equivalent to placing on these properties a lien of $425,000,000 of four per cent securities, which would have preference over first mortgage bonds.

If the railroads are forced to pay extravagant wages to men in train service, the burden must fall on the public, for it is only from the 50,000,000 people directly dependent on these railroads for transportation facilities that the roads can secure revenue. You will readily see, therefore, why, in considering your demands, we hold the public interest paramount.

Already the traffic of a growing country has overtaxed the existing facilities; and the heavy burdens incurred through ill-advised legislation, such as extra-crew bills,—for which the Brotherhood of Railroad Trainmen is alone responsible—forcing on the railroads and consequently on the public, needless expenditures of millions of dollars annually, or the large financial outlay the roads are compelled by law to make for improvements which produce no revenue, such as the grade crossing bill of New Jersey, and the additional burden of previous wage increases. All of these factors are making it impossible for many of the roads to provide those facilities which prudent foresight demands, and which the interests of the public require.

In making demands for extravagant wages,—wages entirely out of accord with the railroads' obligations as a whole—railway employes apparently act on the assumption that a strike that would tie up traffic would never be permitted by the public. They seem to think that if a strike is to be avoided, the railroads must give way,—that the public will force them to give way, believing that arbitration must take place, and that in the end the splitting of differences between what they demand and the wages they receive will result in their favor. In other words, the employes have everything to gain and nothing to lose.

The ability of the railroads to meet the recurring demands for increased wages is measured by the net results of their operations and the sum of obligations which they must meet to maintain their solvency. The reduction of the net revenue by the constantly increasing expenses of operation have so narrowed the margin which is essential to the solvent existence of many of the roads that further increases in operating costs are viewed with grave concern.

The railroads reiterate their statement made to the engineers, that this headlong movement towards financial disaster cannot proceed unchecked.

The conductors and trainmen in the Eastern District have practically uniform wages and working conditions, and the wages now paid are liberal. As positive proof of this we need only call your attention to the fact that they were fixed by E. E. Clark, former President of the Order Railway Conductors and P. H. Morrissey, former President of the Brotherhood of Railroad Trainmen, who acted as arbitrators in the New York Central controversy in 1910.

The method of settlement under which those wages and conditions were adopted was agreed to only after representatives of the employes had declined to accept mediation or arbitration under the Federal Law, arbitration by a board composed of members of the Public Service Commission, Second District, State of New York, or arbitration by a board composed of the Presidents of the Chambers of Commerce of three prominent cities of the State of New York, or in fact, arbitration in any form. Therefore, to avoid suspension of traffic, and the hardships and inconveniences which would result, representatives of the New York Central Railroad offered the only method of settlement that the representatives of the employes would accept.

To prevent strikes on their lines, practically all of the railroads in the Eastern Territory in 1910 accepted the Clark-Morrissey Award.

The wages and working conditions of the conductors and trainmen, fixed by the New York Central Award, are probably more favorable than those of any other class of railway employes; and further, to quote the well-considered language of the Interstate Commerce Commission, "Railroad labor, certainly organized railroad labor, is probably as well paid, and some say better paid, than labor of other kinds upon the average."

As showing the increased cost to the Eastern Railroads of these adjustments in 1910, we need only quote the statement made by the President of the Brotherhood of Railroad Trainmen in his report of the Tenth Biennial Convention of that organization:

"Conservatively estimating, the increases in the rates of pay of Conductors, Trainmen and Yardmen in the East as a result of this movement will approximate $30,000,000 per annum."

No conditions of work have arisen since the application of the Clark-Morrissey Award that would warrant any increase in wages or changes in working conditions.

In view of the fact that the present rates of wages are liberal, and in many cases excessive, the Conference Committee of Managers, acting in the interests of owners of railroad securities, in the interests of all railroad employes,—in the interests of the public as a whole,—must decline your request.

(Signed) The Conference Committee
of Managers,
By Elisha Lee, Chairman.

TRAFFIC.

Traffic Developments for April.—It was not until well towards the middle of the month that the railways were able to resume interrupted traffic in the flooded districts. It is impossible to state the cost of the damage, as estimates vary to such a degree that even an approximate

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figure cannot be given. It is well up into the millions, however, and it will still be several weeks before all repair work has been accomplished.

Roads in the west, northwest and southwest, which have not been affected by the floods, show by their loading reports and earnings. fair gains over last year, but the roads in the flooded districts will do well if they maintain their gain in earnings that they showed prior to the disaster.

Satisfactory reports are being received from traffic officials in various sections of the country and indications point to a continuation of liberal business. All roads except in the flooded district, are now working in better shape and with an abundance of cars. A prompt return of foreign cars is noted on many of the large systems. Merchandise traffic is showing a material enlargement as compared with last year, and the grain tonnage continues to show an increase. Merchants and manufacturers appear fairly busy, although business is inclined to go slowly on account of tariff developments.

One of the favorable developments of the month was the crop report of the United States Department of Agriculture, which shows an average condition of winter wheat on April 1st, of 91.6 per cent of a normal against 80.6 per cent on April 1st, 1912; 83.3 per cent on April 1, 1911, and 86.3 per cent, the average condition for the past ten years, on April 1st. This is the most encouraging grain report of years and points to a bumper crop and enormous tonnage for the railroads. Furthermore. little apprehension is felt over the condition of the winter wheat crop in the flooded sections, as practically the only loss in the acreage will be where there was a swift enough current to tear the plants up by the roots.

Figures of foreign commerce for the month of March show some indications of a decline. The total exports of the principal domestic products for the month were valued at $65,500,000 against $94,000,000 for the same month of last year, and $64,000,000 for March, 1911. Including all classes of merchandise the exports for March were valued at $187,000,000 as against $194,000,000 in February and $205,500,000 in March, 1912. The imports for March were $155,500,000 compared with $157,500,000 for the corresponding period of 1912.

Lake navigation has been resumed from both ends of the Great Lakes. The date for the opening of the Erie Canal will probably not be later than May 15th. On the Ohio and the upper Mississippi rivers, navigation is cleared and the waters have subsided enough to admit of the inauguration of regular freight service.

The lack of demand for anthracite coal, even at the prevailing reduced prices, was reflected in the falling off of anthracite shipments in March, which were 1,660,399 tons less than the shipments of March. 1912, and in the increase in the amount of coal on hand at tidewater shipping ports. The shipments in March, 1912, amounted to 6,569,687 tons; those in March, 1913, to 4,909,288. The coal on hand at tidewater shipping ports was 484,270 tons on February 28th and 772,115 tons at the close of March, an increase of 287,845 tons.

That the volume of summer passenger travel to both the Eastern and Western coasts will be unusually heavy during the coming season is the prediction of passenger traffic officials. There are a large number of conventions to be held in Atlantic Coast cities which are expected to attract many delegates and visitors. There also are numerous conventions scheduled to be held in various Western cities.

LEGAL.

Forwarding Agents Held Guiltless.—George W. Sheldon and Henry W. Ackhoff, composing the freight forwarding firm of Sheldon and Ackhoff, who have been on trial in the criminal branch of the United States District Court at New York on inditement charging the acceptance of rebates from the Lehigh Valley Railroad Company, have been discharged on the ground that the firm was in reality the agent of the railroad company, having been hired by the company, 25 years ago at a salary of $5,000 a year to get business for the company. The case did not go to the jury.

The effect of this decision will be to free all freight forwarders from charges of rebating. The overt acts charged against the defendants was that they accepted a commission of ten per cent from the Lehigh Valley Company for all foreign freight obtained by them for shipment to Chicago and other points West.

Judge James L. Martin in instructing the jury to render a verdict of "not guilty," said in part: "We are living in an age where it behooves everybody that is doing any interstate transportation business, to carefully look into things, and I have sometimes thought that the drift of legislation is to increase business for the lawyers, because I do not know how it is quite safe for anybody to ship anything across the State line without advice of counsel as to whether they are violating a law."

Railroad Combine in Texas Prohibited.—The Fifty-third District Court of Texas has granted a temporary order restraining the Missouri, Kansas & Texas Railroad and allied lines in this State from consolidating. as provided for in a bill passed by the Texas Legislature over the veto of the Governor. The petition, which seeks a permanent injunction and the forfeiture of the railroad's charter, asserts that the proposed consolidation would be in contravention of the State Constitution.

Claim Against Orient Road Compromised.—A claim of $1,045,000 against the Kansas City, Mexico & Orient Railway, held by the American Car & Foundry Company, has been compromised by the receivers of the road for $845.000. The claim was for the balance of $2,500,000 worth of rolling stock and supplies furnished the railroad since 1902. The settlement is regarded as an important step toward a reorganization of the Kansas City, Mexico & Orient Line.

St. Louis Coal Traffic Bureau Sued.—A suit has been filed in the Federal District Court at St. Louis against the St. Louis Coal Traffic Bureau to enjoin it from making railroad rates on coal carried from the Illinois mines to St. Louis and to dissolve the bureau as a combination in restraint of trade.

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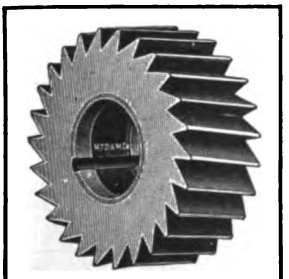

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1790 Broadway, New York, April 3rd, 1913

The Board of Directors of the United States Rubber Company has this day declared from its net profits a quarterly dividend of One and one-half Per Cent on the Common Stock of the Company, to Stockholders of record at 3 P. M. on Tuesday, April 15th, 1913, payable without closing of the transfer books, April 30th, 1913.

JAMES B. FORD, Treasurer.

UNITED STATES RUBBER COMPANY.

1790 Broadway, New York, April 3rd, 1913.

The Board of Directors of the United States Rubber Company has this day declared from its net profits a quarterly dividend of Two Per Cent on the First Preferred Stock of the Company, to Stockholders of record at 3 P. M., on Tuesday, April 15th, 1913, payable without closing of the transfer books, April 30th, 1913. JAMES B. FORD, Treasurer.

UNITED STATES RUBBER COMPANY.

New Brunswick, New Jersey, April 4, 1913.

Notice is hereby given that the Twenty-first Annual Meeting of the Stockholders of the United States Rubber Company, will be held at the principal office of the Company, in the City of New Brunswick, New Jersey, on Tuesday, May 20th, 1913, at 12 o'clock noon, for the election of Directors and for the transaction of any and all business that may come before the meeting, including considering and voting upon the approval and ratification of all purchases, contracts, acts, proceedings, elections and appointments by the Board of Directors or the Executive Committee since the Twentieth Annual Meeting of the Stockholders of the Company on May 21st, 1912, and of all matters referred to in the Twenty-first Annual Report to Stockholders, which will be sent to Stockholders before the meeting, and in the proceedings of the Board of Directors and the Executive Committee, which, until the meeting, will be open to examination by Stockholders of record during business hours at the New York Office of the Company, 1790 Broadway.

The Transfer Books will not be closed, but the New Jersey Corporation Law will not allow to be voted any share of stock which shall have been transferred after April 30th, 1913.

By order of the Board of Directors.

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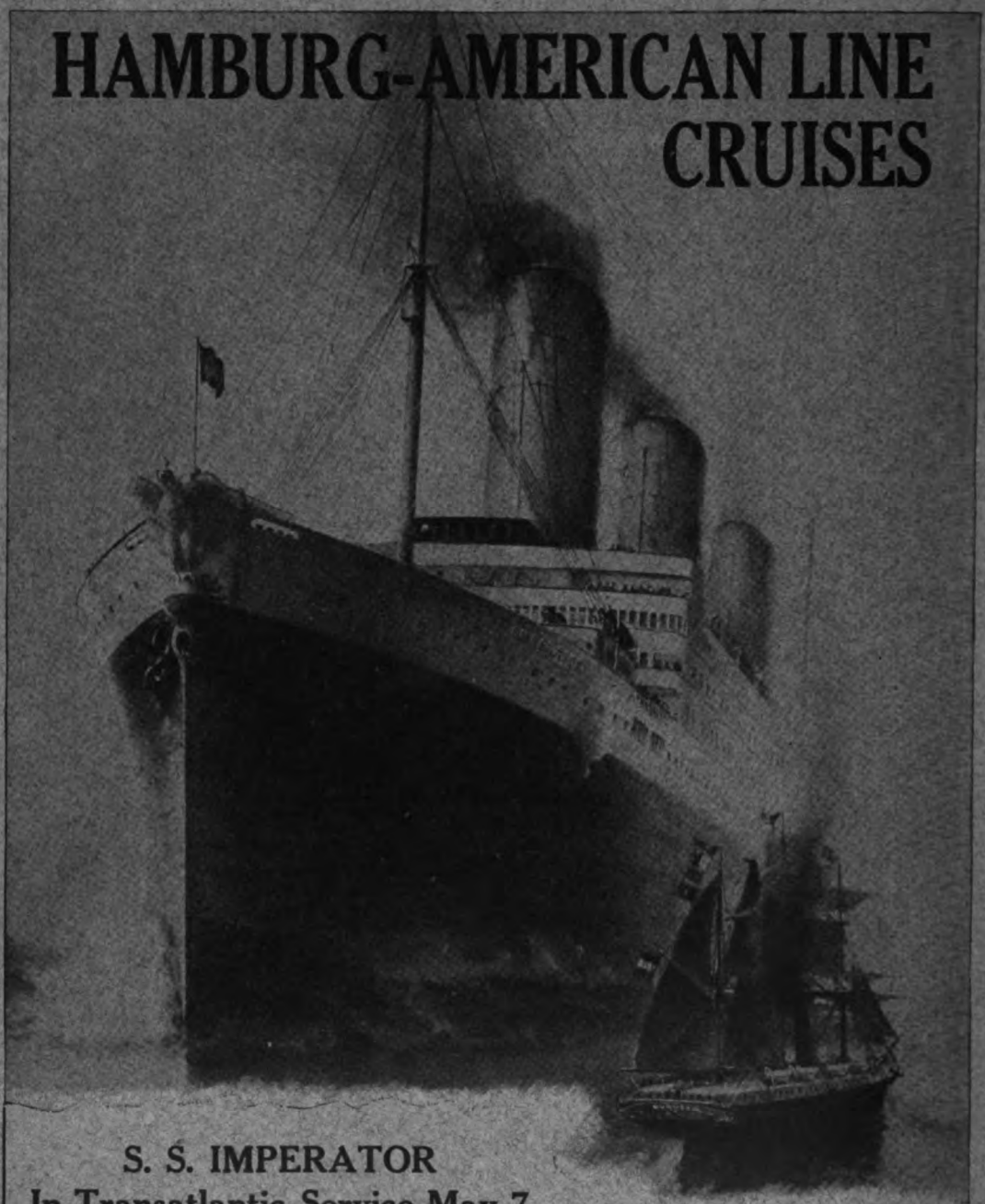

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Transportation :: Commerce :: Finance

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Labor Developments
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The World Wide Influence of the U. S. Steel Corporation
Decrease in Railway Security Issues

A Reasonable Return Upon the Value of the Property Devoted to the Public Service
By Edward Sherwood Meade, Ph.D.

Vast Public Interests Involved in Rate Questions
By Slason Thompson.

The Railroad Regulation Question from an Operating Standpoint
By W. L. Park.

The Railroad Situation of To-day
By Benjamin F. Bush.

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Railway World

VOLUME LVII ESTABLISHED 1856 NUMBER 6

A MONTHLY JOURNAL (successor to Railway World, a weekly publication) designed to present an accurate and comprehensive review of current events pertaining to Transportation, Commerce and Finance and to afford a medium for the development of a clearer understanding of the mutuality of interest which exists between those who employ and those who operate the railways.

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GEORGE A. STEWART . . . .SECRETARY.

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A Progressive Policy

THIS is the sixth issue of the RAILWAY WORLD as a monthly publication. In our January issue, which inaugurated the change from a weekly journal to magazine form after more than half a century of active existence, we announced our purpose to provide an accurate monthly review and digest of railway and kindred news and discussion, concerning all branches of the service, as well as the proceedings of the various legislative and regulative bodies and the more important comments of the press of the country with reference to railway and transportation interests.

The results of this somewhat radical change of policy have already proven its wisdom and confirmed our determination not only to make it permanent but to develop its possibilities to their uttermost limit, and as rapidly as shall be practicable. Many complimentary and approving references to the change are being constantly received from our readers, and an encouraging interest is manifested in transportation circles throughout the country.

Commenting on our first issue in the new form, a prominent railway president writes:

> "I note that the contributors to this number are of an unusually high class, and I feel that if this standard can be maintained, the magazine will prove of great value to railway officials and all who are interested in the development of an efficient transportation system."

Another says:

> "All who are interested in subjects pertaining to railway operation, management and regulation will be greatly interested in having the RAILWAY WORLD kept up to the high standard of its first number in the new form."

And still another:

> "The RAILWAY WORLD is a most excellent publication, and if you can keep it up to its present high standard, it will be of great value."

The five numbers of the RAILWAY WORLD thus far issued in the new form have been replete with substantial and instructive material covering a very wide range of topics by well known writers, and were of direct concern to all who are interested in transportation matters. The review and news sections were equally well supplied with timely information embracing practically every branch of the service.

Our June issue contains many unusually interesting and important features and fully maintains the high standard we have adopted. The subject of advanced freight rates, now receiving wide public attention, is especially treated, and in a manner which we believe correctly reflects public opinion.

We feel that we have now made good under the terms of our January announcement, and are amply justifying the expectations of our friends, whose good opinion we prize above all else.

The RAILWAY WORLD, in its new and improved form is here to stay, and will endeavor to merit in the fullest sense the cordial welcome it has received. It sincerely appreciates the many kind suggestions that have been received, looking to its greatest possible value, and will conform to them as rapidly as shall be practicable. Some of these lead into new channels of service, among which will be descriptive articles relating to the business and industrial development of particular sections, localities and industries especially interested in the transportation problem; to notable scenic and health attractions, and opportunities for the profitable employment of capital and energy; to appropriate biographical and historical sketches, and to matter in a "lighter vein"; all of which will directly relate to the one great subject of transportation.

In addition to a corps of special writers who will contribute to the pages of the RAILWAY WORLD, we have been particularly fortunate in securing as a permanent associate, Mr. E. H. Talbot, who was the founder of the RAILWAY AGE and for many years its proprietor and editor. Mr. Talbot has extensive knowledge of the affairs of the railways and will be favorably remembered by many railway men of prominence, who, we are sure will endorse this arrangement as proof of our determination to improve and sustain the quality and thoroughness of our service.

We gratefully acknowledge the many favorable expressions regarding the substance and form of the new RAILWAY WORLD, which we have received, and shall endeavor to merit the continuance of this gratifying approval by producing a monthly magazine, which shall faithfully and effectively represent all that is best in transportation and kindred interests.

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Railway World

VOL. LVII. JUNE, 1913 No. 6

Important Developments in the Transportation Field

RAILWAY FACILITIES VERSUS FREIGHT RATES

In February, 1911 the Interstate Commerce Commission handed down its decision denying the petition of the trunk line railroads that they be allowed to make certain advances in their class rates. This petition was based upon two grounds. First, that the railroads were not earning a fair return upon the value of their property, and second, because the cost of operation would be increased by the increases granted in wages. The proof submitted by the railroads did not satisfy the Commission. In reaching a decision adverse to the carriers, the Commission claimed that in spite of the increases of wages, railway net earnings were the largest in the history of the country, and that the average rate of dividend paid and the proportion of stock-paying dividends, were the largest on record. The decision of the Commission was not, however, final. In handing down its rulings, the Commission made this significant statement: "We do not say that the carriers may not increase their income. We trust they may, and confidently believe they will. If the time does come when, through changed conditions, it may be shown that their fears are realized, or approaching realization, and from a survey of the whole field of operations there is evidence of a movement which makes against the security and lasting value of legitimate investment, and an adequate return upon the value of these properties, this Commission will not hesitate to give its sanction to increases which will be reasonable."

Relying upon this implied promise of the Interstate Commerce Commission, a committee of attorneys representing the Trunk Line railroads on May 15th, filed a petition for the reopening of the case for an increase in freight rates for the Eastern railroads. A general horizontal increase of 5 per cent on both class and commodity rates was asked for. Briefly summarized, the basis of the petition is as follows: First, the cost of conducting railroad business has been steadily increasing, by reason of increases in interest rates on new capital, wages, taxes, extra crew laws, employers' liability and compensation acts, elimination of grade crossings, and the installation of safety appliances. Second, existing rates are insufficient to afford a reasonable return to the carriers. Third, it will be necessary for the railroads to spend many millions of dollars in improving their facilities in order to satisfy the needs and demands of the public.

SAMUEL REA.
President, Pennsylvania Railroad.

DANIEL WILLARD.
President, Baltimore and Ohio Railroad.

W. C. BROWN.
President, New York Central Lines.

Committee of railway presidents representing the Eastern roads in their efforts to procure a 5 per cent increase in freight rates.

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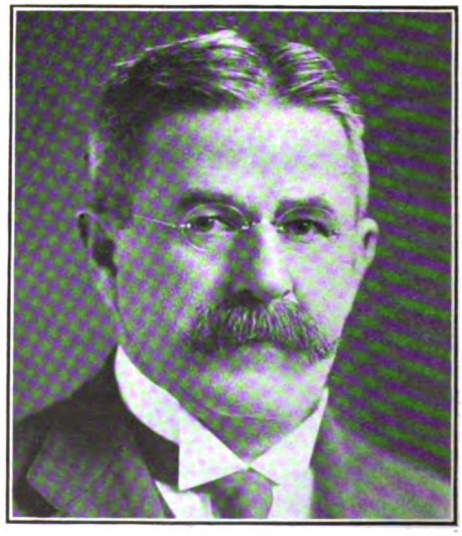
THEODORE N. VAIL,
President, American Telephone and Telegraph Company.

"The same business men who are trembling lest their factories will be closed because of textile tariff or other tariff alterations, have opposed a rational increase in railroad freight rates. And yet an increase in freight rates is the biggest thing which could possibly happen in this country to-day. The railroads need it, must have it. When they get it, and I feel morally certain they will get it, then their financing credit will be restored, their ability to grow and expand will be assured and this will work down along the line to every industrial town and city in the land."

Fourth, this money cannot be raised on terms which would be considered reasonable unless the margin of surplus earnings, which constitute the security of railroad obligations, shall be considerably increased. The petition finally concludes with a brief explanation of the 5 per cent basis of rate advances. A horizontal change of this character would work little disturbance of existing relations between classes of traffic and existing communities. For the same reason an advance is requested for commodity rates as well as for class rates.

One of the most forcible statements in support of the position taken by the railroads is contained in a communication by President Rea, of the Pennsylvania to the Philadelphia *Public Ledger*. President Rea shows that the increased revenue to the Trunk Lines, resulting from the increase asked for, would be about $40,000,000, or about $1 per head of the population in the territory affected. Railway expenses, he points out, have largely increased. The added cost of new legislation alone on the Pennsylvania Railroad east of Pittsburgh, from 1906 to 1912, was nearly $11,000,000. New laws are being constantly enacted which mean further increases in expense. The railroads do not question the wisdom of this legislation; they are anxious to obey the law and to conform to the requirements of public opinion in the methods by which they conduct their business.

It is impossible, however, for the railroads to meet this added expense, and also to pay the cost of new facilities, which growing traffic and the demands of the public for increased safety and expedition in railway traffic involve, without increasing the revenue from transportation. As President Rea points out, a refusal to admit the contention of the railroads that they should be allowed to charge higher freight rates, is equivalent to a declaration that a portion of the community composed of railway stockholders, which number in the case of the Pennsylvania alone nearly 100,000, should contribute of their property to the benefit of the rest of the people. Beyond this, however, without increased revenue, the new capital cannot be secured, and without new capital the demands of the public cannot be satisfied. The proposition, therefore, reduced to its lowest terms, in the opinion of the President of the Pennsylvania, is this: If the public wish certain definite improvements in their transportation systems they must make it possible for the railroads to get the money, with-



L. E. JOHNSON,
President, Norfolk and Western Railway.

"If the restricting legislation of the National Congress and the State Legislators of this country continues, and the never-ending demands of labor for increased compensation continue, there are but two finishing points—bankruptcy or government ownership."

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JAMES SPEYER, BANKER.

"The people want fair play. Let them know all the facts and they will act fairly."

out which these improvements cannot be made.

President Willard, of the Baltimore and Ohio, in a communication addressed to the Merchants and Manufacturers Association of Baltimore, stated the contention of the railroads in another way. He pointed out that at the existing rates, it costs the shipper $1 to send a ton of freight 100 miles. All that the railroads ask is that the shipper pay $1.05 for this service.

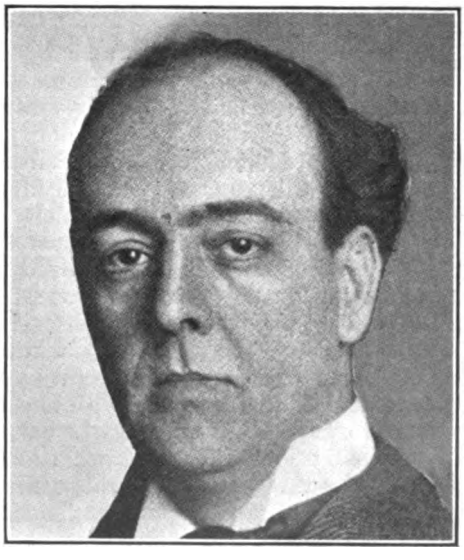
"In return for this slight concession the railroads will be in position to put their facilities in such shape as to better serve the shippers. This is the ground on which we will seek to get the general support for our efforts. It seems to us that an alert business man will readily agree to pay us this small addition if he knows that it is going to result in his having cars and motive power always available to move his goods. That it will enable us to do this and better provide for the country's growing needs is one of the grounds we will take in urging our case.

President L. E. Johnson, of the Norfolk and Western, in a statement issued in connection with legislation now pending in the Ohio Legislature, calls attention to the lack of security of new railroad issues. He points out that the railroads have now scarcely any collateral to offer the investor except the faith in their ability to earn money. "The money that railroads are forced to acquire now, and have been for the past several years, has been secured wholly upon the ability of the company to pay the interest on the money so obtained.

"If the restricting legislation of the national Congress and the state legislatures of this country continues, and the never-ending demands of labor for increased compensation continue, there are but two finishing points—bankruptcy or government ownership! This is a clean, hard fact, susceptible of proof and clearly demonstrated by results that are obtaining in foreign countries.

"In England the privately-owned corporations have reached a point where they must have reduced cost of operation or increased rate for transportation to pay fixed charges, with nothing left over for the stockholders. France and Germany have taken the other course and own and operate most of the railroads in those countries."

A more general survey of the situation, from the railroad point of view, was presented at a recent meeting of the Economic Club of New York. The subject for discussion was, "Are Our Railroads Fairly Treated?" The presiding officer, Mr. James Speyer, the president of the Club, took advanced ground in favor of the railway regulation which, he claimed, has been necessary, to do away with the practices of rebating and secret profits supposed to have been realized from the sale of securities.



FREDERIC A. DELANO,
President, Wabash Railway.

"It will be a sorry day for the Republic when regulation is carried to such an extreme that the owners of the railways are unwilling any longer to accept the responsibilities of management."

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These practices, he declared, were things of the past. He approved emphatically of the interstate commerce law and the Interstate Commerce Commission. Not a single railroad manager in the United States, he said, would vote in favor of the abolition of either law or the Commission. If the railroads are not fairly treated, in his opinion, it was because the people were not acquainted with the facts which at present confront railway managers.

The public interest in higher freight rates as a means to larger railway development, was discussed by President Benjamin F. Bush, of the Missouri Pacific. His thesis was that transportation should keep pace with agriculture and manufactures. From 1900 to 1910, he showed, the capital value of agriculture increased 100 per cent, and the capital value of manufacturers 105 per cent, while the capital of the railroads increased less than 40 per cent. The value of the products of manufactures, he found, increased from $11,500,000,000 to over $20,500,000,000, or 81 per cent. It is essential in order that this rapid industrial development should continue, that the railroads should be allowed to increase their facilities. They cannot do this with the present rate of return. The last census showed that the net returns of the owners of manufactured capital were over 12 per cent, yet on the railway capital there was nothing paid on three and a half billion, and less than 5 per cent on seven and a half billion. President Bush concluded:

"If the railroads deteriorate in the service rendered, as they undoubtedly must if the conditions are not changed, it unmistakably means that commerce will be retarded; that industry will languish; that the many fruits of agriculture will wane; that the proud eminence we have attained in our many varied pursuits will crumble, and the unrest, discontent and dissatisfaction of an unemployed people may lead to the establishment of a new order of things with respect to the ownership and operation of the railroads of the country, with the attendant dangers to the perpetuity of our republican institutions. So the conclusion is irresistibly forced upon us that this railroad question is a Government problem, and one of very grave and serious concern, which should be satisfactorily settled, and the ominous dangers threatened averted thereby."

President Brown, of the New York Central, followed the line of thought indicated by the presiding officer. He pointed out that as a result of the period of unrestrained competition, when rebates and passes were most freely given, railway rates were reduced to a low level, and that the rates now in effect have not been substantially changed since that time, although the prices for material and labor are much higher. He also predicted that the inconvenience and loss which will come to the country through the lack of efficient and improving service for the railroads "will represent a burden fifty times greater than that of the slight increase in rates which railroad managers are trying so hard to get."

President Delano, of the Wabash, went even further than the preceding speaker, when he said that with the present margin of surplus railroad earnings, the period of railway building and extension in the United States is practically over. The opportunity for the building of small railroads, he claimed, no longer exists. No encouragement is offered to the investor in railroad securities and only the strongest railroads can continue their development.

An address which aroused much interest, because it presented the academic point of view, usually regarded as hostile to the railroads, was that by Prof. William Z. Ripley, of Harvard University. Professor Ripley pointed out that railway net income had declined about one eighth since 1910, a condition of affairs which make it practically impossible for the carriers to raise funds by the sale of long termed securities. Railway credit is also threatened by the continuous pressure by the railway brotherhoods for higher wages. No great relief is to be expected from increased efficiency of operation or from a growth of traffic. To counterbalance the steady improvement in operating methods, there is entering a decreasing efficiency of an increasing cost of labor, due to the restrictive policies of the brotherhoods, and aided by legislation. Increase of tonnage is not possible without overcrowding existing facilities, and, therefore, resulting in decreasing costs. In Professor Ripley's opinion, the only practical measure of relief is to allow a general advance in freight rates.

As yet no attempt has been made on the part of shippers' organizations to answer these arguments. Sentiment towards the railroads among the shippers has greatly improved during the last two years. Largely through the traffic association, where shippers and carriers meet for the discussion of problems of mutual interest, a basis of un-

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derstanding has been arrived at. The essential identity of interest between the railroads and those who use their facilities, has been so clearly and so often pointed out, that it is confidently expected that the shippers and shippers' organizations will not only not oppose the proposal to increase rates, but in many cases will actively support the position of the railroads. The case presented by the carriers will be much stronger than in 1910. Its object will be to show certain benefits which the public will derive from the increase of rates and certain disadvantages which the public will suffer if rates are not increased. It will recognize that the public is not greatly concerned in the welfare of the railroads *per se*. They are greatly concerned, however, in their own welfare, and if the railroads can show certain direct benefits to result from the increase of rates, it is reasonably certain that they can secure passive acquiescence on the part of the organs of public opinion, if not active support for their demands.

PRESIDENT MELLEN'S TESTIMONY

We regret that the space available this month will not suffice to give our readers a full account of the very remarkable testimony of President Mellen before the Interstate Commerce Commission on May 2. With the exception of the testimony of the late Mr. J. Pierpont Morgan before the Pujo Committee it is doubtful if the records of American state trials, similar to the old trials for high treason, brought not against noblemen, ministers and generals, but against great corporations and their executives, contain a fund of testimony so frank, so well-informed and so convincing. For five hours the examination of Mr. Mellen continued, and during that time every point in the combined indictment of Mr. Louis D. Brandeis and his New England coadjutor, the New York *Evening Post*, and its followers in the New England press, the various trade bodies of New England, and the numerous politicians who have tried to curry favor with their constituents by attacking a great corporation, were met and answered. The peculiarity about the testimony is that it is in no sense a defense. Mr. Mellen frequently admitted mistakes of judgment for some of which he was responsible and those mistakes against which he had protested. An examination of the entire record, however, shows clearly that the management of the New Haven and Hartford has been attacking with persistence and energy an extremely difficult task, that the suspicion of personal dishonesty or improper profit does not attach to a single act of the Mellen administration and that in time all of these acts will be justified by the result.

A few of the points touched upon in his testimony can be briefly noted. The accusation was made by the government accountant, who conducted the examination of the New Haven and Hartford books, that Mr. John Billard made a profit of $2,700,000 on his purchase from and sale to the New Haven of its Boston and Maine

CHARLES S. MELLEN,
President, New York, New Haven and Hartford Railroad.

stock. The New Haven, through the New England Navigation Company, had acquired about $110,000 of Boston and Maine stock in 1907. Prior to 1908, it had believed and had been advised by counsel that it had authority to acquire and hold this stock. On May 9, 1908, a decision adverse to this power was rendered by the Supreme Court of Massachusetts. The necessity was immediately presented of disposing of the Boston and Maine stock. In this emergency the entire block of stock was sold to John Billard, of New Haven, Conn., at $125 per share, and a year later, Massachusetts having enacted a law which permitted the New Haven, through the instrumentality of the Boston and Maine Holding Company, to hold the stock of the Boston and Maine, this stock was repurchased from Mr. Billard at

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a nominal price of $150 per share, the difference between $125 and $150 per share represented the apparent profit of $2,700,000 and this profit has subjected the New Haven to severe criticism, the impression having been allowed to go out that some of its officials were improperly interested in the purchase. As a matter of fact, while Mr. Billard paid $125 in cash for the Boston and Maine stock, the purchase from him was in notes of the New England Investment and Security Company, guaranteed by the New Haven and Hartford. These notes had a market value of from $80 to $85. This transaction, however, is not yet completed and, as President Mellen said, "When this transaction is completed it will be found that while Mr. Billard has received the protection which was due him for having taken the great risk which was connected with the transaction, he will not have received a net profit that is any more than he is entitled to."

President Mellen also explained the much criticised sale of the sleeping and parlor cars to the Pullman Company. It is claimed that this sale for a price of $3,300,000 was unprofitable to the New Haven and Hartford, and again the suggestion of improper motives, largely by way of insinuation and innuendo, has been made. Newspaper readers will probably remember the character of the newspaper headlines in which this transaction was referred to. The facts furnished a complete explanation of the wisdom of the sale. The New Haven was faced with the immediate prospect of reducing its Pullman rates. It was also necessary, to meet the demand of the public for increased safety in travel, that they should expend within the near future $4,000,000 for new equipment to supply new steel cars. The Pullman Company took the cars at substantially the book value for the purpose of getting the contract, relieving the New Haven of a capital expenditure of $4,000,000 and paying $3,300,000. The Pullman Company pays all the expenses connected with operating the cars and $700 per car for the privilege. This is the best contract which the Pullman Company has made with any railroad in the country. The Pullman Company has already furnished one complete train of steel cars for use on the New Haven, another train will be ready in July, and this substitution will continue until every wooden car is off the New Haven.

One more point made by President Mellen is especially deserving of comment. The New Haven has been severely criticised for its steamship purchases. By these acquisitions it is alleged the company is attempting to maintain a monopoly of transportation in New England. On this point President Mellen offered a personal explanation. On February 8, 1907, he submitted to the board of directors of the New Haven an offer made on behalf of Mr. Charles W. Morse, of $20,000,000 for the 50,000 stock in the New England Navigation Company that stood on the books of the New Haven and Hartford for the cost of $5,948,469. Mr. Morse strongly urged his directors to accept this offer, for one reason because of the possibility of regulations at Washington requiring railroads to sell their steamship lines. No other director except Mr. Mellen favored this proposition and it fell. The wisdom of the arrangement which he then proposed is now plainly apparent.

Every point which has been made against the New Haven management was handled by Mr. Mellen in his five hours' testimony with similar frankness. He explained his personal transactions with the company, the company's campaign contributions through him, his purchase of the Rhode Island trolleys, his purchase and construction of lines about Boston, the purchase of the Central New England and the Berkshire Street Railway, and the New York, West Chester and Boston without reserve, and with a wealth of detail and a frank acknowledgment of mistakes where mistakes had been made; and surprisingly few mistakes have been revealed—that was most convincing. The impression which a reading of his testimony leaves is that of an absolutely honest man, entirely devoted to the building up of the prosperity of the section which depends upon his company for transportation, constantly dealing with complicated problems of vital importance demanding immediate solution, continually embarrassed by legislative attacks and by insistent criticism, and yet in the face of tremendous difficulties carrying forward a great work to its final completion.

LABOR DEVELOPMENTS

The agitation for higher freight rates brings into prominence the continued agitation for higher wages which has now passed to the trainmen. The demands of the Trainmen's Brotherhood upon the managers of the East-

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W. G. Lee,
President, Brotherhood of Railroad Trainmen.

A. B. Garretson,
President, Order of Railroad Conductors.

ern railroads, were refused on May 1st. The grounds of the refusal were substantially that the increase of pay demanded was excessive, being about $17,000,000, or 20 per cent. The Conference Committee of Managers pointed out that the confessed inability of the railroads to meet these demands was largely due to the heavy burdens incurred through ill-advised legislation, such as the full-crew laws, for which the Brotherhood of Railway Trainmen is alone responsible. As their revenues now stand, they are unable to make the improvements which are demanded by the requirements of their position as public servants, and to increase their cost of operation by granting the demands of the trainmen would be either to impose heavier burdens upon the public or to approach dangerously near the line of insolvency. The present wages and working conditions of the trainmen, the Conference Committee points out, are liberal. They were fixed by E. E. Clark former president of the order of Railway Conductors, and P. H. Morrissey, president of the Brotherhood of Railway Trainmen, who acted as arbitrators in the New York Central controversy in 1910. They are more favorable than those of any other class of railway employes, and they represented in 1910, as stated by the president of the Brotherhood of Railroad Trainmen, "for conductors, trainmen and yardmen in the East, about $30,000,000 increase per annum."

The next step in the program is a strike vote. This will soon be taken and the result is a foregone conclusion. The only question of doubt concerns the attitude of the railroads. They were forced to concede arbitration in the case of the engineers and firemen, because engineers and firemen possess the monopoly of a certain kind of skilled labor indispensable to the operation of the railroad. Conductors and brakemen, however, possess no such monopoly. Their duties are routine, the intelligence required to perform them is not high, and they can be learned in a short time. If the conductors and brakemen on the Trunk Lines should decide to strike the railroads could, it is fair to say, put on notice, as they are, readily fill their places. Whether they will resort to this step is uncertain. Unless, in our opinion, they make a stand somewhere, the $40,000,000 which they may reasonably expect to receive from the Interstate Commerce Commission will be quickly swallowed up by the demands of railway labor, and they will be compelled to traverse again the weary round of demand, conference, refusal, strike vote, arbitration and increased wages. It is, in our judgment, far better to establish some definite standard of return for railway capital, which can be employed to determine the reasonableness of rates, wages, taxes and regulations. Failing the establishment of such a standard, however, it is to be hoped that the railroads will make a stand somewhere along the line against the steady encroachments upon their income by the railway brotherhoods.

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H. M. JONES. W. D. PENCE. J. S. WORLEY. E. F. WENDT. R. A. THOMPSON.

Advisory Board of Engineers who are to assist the Interstate Commerce Commission in their Physical Valuation task.

PHYSICAL VALUATION

The first step in the task of making a physical valuation of the railroads of the United States was taken by the Interstate Commerce Commission when it selected its board of valuation engineers on May 1st. The announcement issued by the Interstate Commerce Commission divides the country into five districts for valuation purposes; each of these districts is to be in charge of an engineer and in addition each engineer will be a member of a board to advise with the members of the Interstate Commerce Commission and with the Advisory Board of three engineers which is yet to be appointed. The personnel of the Board of Engineers is very satisfactory. Without exception they are men of experience and ability, admirably well fitted for the difficult task before them.

Mr. Robert A. Thompson was for eleven years chief engineer of the State Railroad Commission of Texas, and has also spent five years in the employ of railroads. Since October, 1911, he has been chief engineer of the State Railroad Commission of California, where he has had charge of extensive valuation work.

Mr. Edward F. Wendt has spent twenty-four years in the engineering department of the Pittsburgh and Lake Erie. Since 1898 he has been assistant engineer in charge of the maintenance of way and construction and contract work. Mr. Wendt, in connection with the late Walter Berg, has made extensive studies in the valuation of railroad property. He was elected president of the American Railway Engineering Association at its last annual meeting.

William D. Pence for six years was assistant engineer and resident engineer on the Atchison, Topeka and Santa Fe. He has also served as a teacher and professor at the University of Illinois, Purdue University and the University of Wisconsin. Since 1906 he has been chief engineer of the Wisconsin State Railroad Commission and the State Tax Commission, and has had extensive experience in valuation work.

John Stephen Worley has had a large amount of railroad experience. He was chief engineer of construction on the St. Louis and North Arkansas, chief engineer of the Kansas, Oklahoma and Southwestern, and of the Fort Scott and Pittsburgh. He has also had large experience as an engineer on municipal improvements and appraisals. Since 1909 he has been a member of the firm of Worley and Black, of Kansas City, consulting engineers. Mr. Worley took part in the examination of the physical properties of the Central Georgia and the Buffalo, Rochester and Pittsburgh, and in 1912 was engineer in charge of the investigation of the methods of operation and accounting of the Delaware, Lackawanna and Western.

Howard Murfree Jones has had eleven years' experience in railroad work, most of the time with the Nashville, Chattanooga and St. Louis. His specialty is bridge construction and he has had a large amount of experience in this field.

The task set before this Board who will act for the Commission is defined in the law as follows:

"In such investigations said Commission shall ascertain and report in detail as to each piece of property owned or used by said common carrier for its purposes as a common carrier, the original cost to date, the cost of reproduction new, the cost of reproduction less depreciation, and an analysis of the methods by which these several costs

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are obtained, and the reasons for their differences if any.

This task is a difficult one. In our opinion it will be impossible, even with the prescribed co-operation of the railroads, to carry out in detail the purposes of Congress. It is true that the main burden of furnishing the material upon which the valuation is based is placed upon the railroads who are required to "furnish to the Commission or its agents from time to time, as the Commission may require, maps, profiles, contracts, reports of engineers and any other documents, records and papers or copies of any or all of the same, in aid of such investigation and determination of the value of the property of said common carrier, and shall grant to all agents of the Commission free access to its right of way, its property, and its accounts and records, and memoranda whenever and wherever requested by any duly authorized agent, and every common carrier is hereby directed and required to co-operate with and aid the Commission in the work of the valuation of its property in such further particulars and to such extent as the Commission may require and direct, and all rules and regulations made by the Commission for the purpose of administering the provisions of this section. * * * * shall have the full force and effect of law."

It is estimated that the cost of this work to the railroads will be at least $7,500,000. So many of the elements of value of which the law takes account are, however, so difficult of accurate calculation that it is unreasonable to expect anything more than a wide approximation under these heads to be the result of the Commission's activities.

Railway officials are not alarmed by the prospect of a physical valuation of their properties. They are firmly of the opinion that the investigation will prove that the railroads are generally under-capitalized and that the assets, as given in annual reports, do not fairly represent the cost of reproducing the company's properties. In this connection it is of interest to review some former attempts at physical valuation. The State of New Jersey last summer completed an appraisal which had been under way since 1909. For seven leading systems operating in the state, an actual valuation of $343,301,589 was shown against the total capitalization applicable to the property within the state of $357,346,186.

Similar valuations have been made by Washington, South Dakota, two by Michigan, Minnesota and Wisconsin. In the cases of Washington and Minnesota the cost of reproducing the properties was considerably above the capitalization of the companies owning them. In South Dakota, Michigan and Wisconsin the cost of reproducing was placed at lower figures. The valuation of railroad properties in Trunk Line territory are certain to be very much higher on account of the value of terminals and extensive engineering work than the railroads operating in the South and West. It is a safe conclusion that the final result of the valuation will show, as already stated, that American railroads are greatly under-capitalized.

DEVELOPMENTS AT THE NATIONAL CAPITOL

Opposition to the Democratic program of taxation is growing. Washington is full of representatives of manufacturers who are unceasing in their protests to their own Senators and Representatives as to the disastrous effect which the new schedules will have upon their business. No doubt many of these predictions of disaster are exaggerated. There is, however, much reason to apprehend a considerable amount of industrial disturbance. It is impossible to say that there is a chance of these protests having effect. The President has announced that his position is unchanged; he will insist on the passage of the Underwood bill by the Senate. In this connection it is of interest to note that appointments are still being held up, presumably for the effect of the delay upon Senators who may not be inclined to support the full tariff program of the President.

The answer of the Administration to the predictions of wage reductions to follow the new tariff, as delivered by Secretary Redfield, of the Department of Commerce and Labor, was that he is planning an investigation into the business methods of large employers of labor generally who attempt reprisals on their workers by reducing wages should the Underwood bill pass the Senate. The Secretary did not state what he proposed to do as a result of these investigations, but the general impression to be gained from his deliverance was a threat of dire punishment to any manufacturer who reduced wages because of the new tariff. This declaration has aroused the deepest resentment among manufacturers. President Alba B. Johnson, of the Baldwin Locomotive Works, voiced the general impression as follows:

"Personally, I think it one of the most ar-

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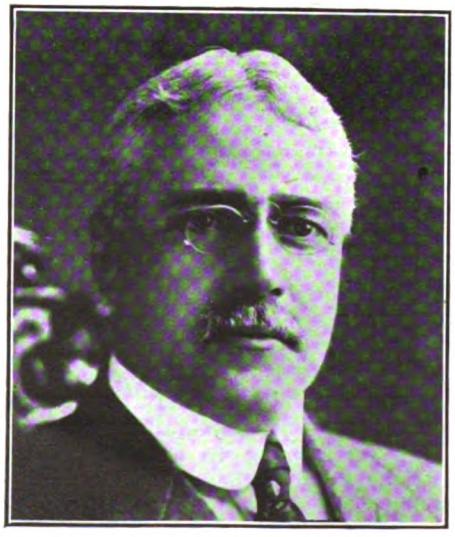
rogant pieces of demagoguery that has ever reached my ears. I have been surprised at some of the things previously put over in Washington, but this one tops everything. It appears that they don't mind the derision that is being thrust upon them, because if they did they never would send out ultimatums of this kind. I would rather not comment upon the ridiculous declaration to any length because I don't consider it worth it."

Opposition to the Income Tax law is also growing. In accordance with instructions at a previous meeting, the New York Chamber of Commerce Committee on Finance and Currency on May 1st presented a report on the Income Tax which strongly criticised the proposed law. The criticism of the committee is based upon the system of deduction of tax at the source of the income, which is a leading feature of the scheme. The committee points out that this feature has been imported from England but that the framers of the law have failed to take into account certain differences between England and the United States. In England, for example, the tax exemption is so low that there are practically no holders of securities who are exempted. In the United States, however, enormous amounts of bonds, stocks and mortgages are held by persons whose total income does not reach $4,000. The Income Tax bill, however, provides for the deduction of the tax by corporations, firms and individuals paying interest, salaries, etc., to be paid by these persons to the collector. Those who are entitled to the $4,000 exemption must file with the party required to withhold and pay the tax for them, affidavits claiming the benefit of this exemption. The objections to this method are serious. Every corporation must mark, for purposes of separate identification, every interest payment. A large number of applications to every company will be necessary by persons who are exempted from the tax. This means great expense, endless annoyance and frequent injustice. In the case of interest coupons, for example, which are largely collected through banks at the place of payment, which, being received for collection from other banks or bankers rather than from the bondholders direct, every coupon collected will, under the proposed law, have to be separately marked from the time it starts on its journey and in many cases must be accompanied by affidavits to secure exemption.

While the anti-corporation activities of the Wilson Administration have been necessarily held in abeyance until the tariff bill is passed, indications are not lacking that a determined attempt will be made to continue the campaign against industrial and railroad combinations as soon as the tariff and currency questions are out of the way. The Department of Justice has admitted that papers are in preparation for a suit under the Sherman anti-trust law aimed to dissolve the Reading's control of the Central Rail-



F. A. VANDERLIP,
President, New York City National Bank.

GEORGE B. CORTELYOU,
President, Consolidated Gas Co. of New York.

Members of the Commerce Committee on Finance and Currency of the New York Chamber of Commerce who recently issued a report strongly condemning the proposed income tax law.

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road of New Jersey. It is also announced that the Attorney General will soon begin a broad investigation of the New England railroad and steamship situation, with particular reference to the New York, New Haven and Hartford. Reference is made in another place to the determination of the Department of Justice to force the Southern Pacific to give up its ownership of the Central Pacific. On the other hand, there is a confident expectation in labor circles that the President will soon sign the Sundry Civil Bill which protects labor unions and combinations of farmers from prosecution under the Sherman law.

These few straws show that the winds of administrative policy are blowing strongly against the corporations and that, on the other hand, the greatest consideration will be shown to organized labor or organized agriculture, the sources from which the Democratic party must draw its support in the next Congressional election. In spite of President Wilson's assurances that business has nothing to fear from his administration, he has done nothing or said nothing officially, nor has any utterance been made by any responsible Democratic leader in Congress, which leads to any other inference than that the President is determined to effect a thorough-going, radical and drastic revolution of economic conditions in the United States, to bring about what he terms the "equality of opportunity." That the carrying out of this program is fraught with possibilities of serious damage to American business is well recognized, and business men in all parts of the country are taking the most conservative courses open to them pending the development of these policies.

SHIPPING INTERESTS ENDORSE COMMERCE COURT

Sentiment in favor of the retention of the Commerce Court continues to grow. It is now generally recognized that this tribunal performs a useful function in expediting appeals from decisions of the Interstate Commerce Commission. A needed amendment of the law, which is embodied in a bill endorsed by Representative Broussard, of Louisiana, provides that jurisdiction as vested in the Commerce Court and the review of orders of the Interstate Commerce Commission be applied in negative and affirmative orders alike. This provision gives the same right to the shipper that is accorded to the carrier under the present law. At present only the carrier is allowed to appeal to the court, which right is denied the shipper. The amendment will make the Commerce Court an impartial body between two contending forces. Of necessity, a court to which only the railroads could appeal would be regarded by the shipper with a certain amount of antagonism.

A fair indication of the change in sentiment towards the Commerce Court is contained in a statement by Mr. D. O. Ives, traffic director of the Boston Chamber of Commerce, which was one of the first bodies to publicly express its position in favor of continuing the Commerce Court. With only one class of litigation to handle, judges of the Commerce Court are in a position to become expert in all matters concerning railroads and transportation. At the same time the personnel of the court will slowly change as a result of the provision in the law for the designation of new members of the court each year, which will prevent the court from falling into a rut. Mr. Ives calls attention to another argument in favor of the court, in fact the strongest argument which can be urged in its behalf, namely, the fact that it has greatly expedited appeals from the Commission. The friends of the Commerce Court have been very active and are doing everything in their power to impress the President with the advisability of continuing the tribunal. While the President has as yet given no definite expression of his opinion it is believed that he will favor the continuance of the tribunal.

PROGRESS IN THE HARRIMAN LINES DISSOLUTION PROCEEDINGS

Those in charge of the disposition of the Southern Pacific holdings of the Union Pacific are making some progress. The Union Pacific now has $126,650,000 of Southern Pacific stock free in its treasury. $108,000,000 of this stock was, until last December, pledged under the mortgage securing the Oregon Short Line refunding 4 per cent bonds. In this indenture it was provided that "any stocks, bonds, or other securities held by the trustees hereunder may be withdrawn by paying to the trustees, in cash, or in bonds issued hereunder, taken at their face value, an amount equal to 80 per cent of the value of such stocks, bonds or other securities. * * * * Of the $100,000,000 Short Line refunding bonds issued only $45,000,000 were outstanding in the hands of the public, the remaining $55,000,000 are owned by the Union Pacific, and were untouched at the time of the

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FORMER SENATOR JOHN C. SPOONER OF WISCONSIN, Attorney for the Union Pacific in the Dissolution Proceedings.

merger decision." These $55,000,000 Short Line bonds were part of the collateral substituted for the release of the Southern Pacific stock. In addition, the Union Pacific deposited 61,700 shares of Baltimore and Ohio stock, 40,000 shares of New York Central stock, and 18 San Pedro, Los Angeles and Salt Lake City fifty year bonds. This substitution of collateral removes an obligation which, it was feared, would arise on the part of holders of these Short Line bonds, to the consummation of the new plan for the sale of the Southern Pacific stock.

The courts are helping on the plan of dissolution in every way possible. United States Judges Sanborn, Hook and Smith recently filed a memoranda in which they made certain suggestions bearing upon the new reorganization plans submitted to them by Judge Lovett. The point of this suggestion was that any plan of dissolution should make sure that the Union Pacific stockholders did not continue as individuals the control which their corporation was no longer allowed to have of the Southern Pacific. It was pointed out, in the memoranda, that 4,440 of the Union Pacific stockholders held $82,162,400 of Southern Pacific stock, exclusive of the stock involved in the suit. Judge Lovett, in a plan informally presented to the court, provides that certificates issued against the $126,650,000 of Southern Pacific stock in the Union Pacific treasury be offered for sale to Union Pacific stockholders, barring all holders of 1,000 or more shares of Union Pacific stock. The number of such holders is 368. Provision is also made in the plan for a syndicate to underwrite their certificates or to sell on the New York Stock Exchange such certificates as are not provided for. The plan also provides that the $126,650,000 Southern Pacific stock to be deposited with a trustee be disenfranchised while so held by the trustee; that the certificates of interest to be issued by the trustees against the stock have no voting power and that the certificates of interest be exchanged for Southern Pacific stock only after the applicant affirms that he is not the holder of 1,000 or more shares of Union Pacific stock.

In our opinion the objections which have been raised by the Government and by the court to the plan of dissolution proposed by the officials of the Union Pacific is fanciful in the extreme. These companies do not now and never have competed in any sense of the word. The Supreme Court in ordering their separation did not contend that they were attempting to establish a monopoly but merely that they had the power to establish a monopoly. It is altogether unlikely, no matter what disposition is made of the Southern Pacific stock by the Union Pacific, that any effective combination in restraint of trade would be accomplished through individual ownership. It is not by individual holdings that effective combinations can be formed and continued. The stock representing the control of competing companies must be placed in the hands of some permanent body, whose directors shall vote it in accordance with a well defined and continuous policy of joint development. In our opinnon the court and the Department of Justice are making a mountain out of a very small mole hill.

A new element has been introduced into the situation in the attempt of the Attorney General to force the Southern Pacific to sell the Central Pacific. The Supreme Court, in the merger decision, did not say that the Southern Pacific must sell the Central Pacific. Attorney General Wickersham, however, threatened to bring another suit to compel the sale of the Central Pacific on the ground that it was entirely a competitive line of the Southern Pacific route via El Paso. Attorney General McReynolds has not yet gone so far as his predecessor, but he has intimated that a continuance of ownership of the Central Pacific by the South-

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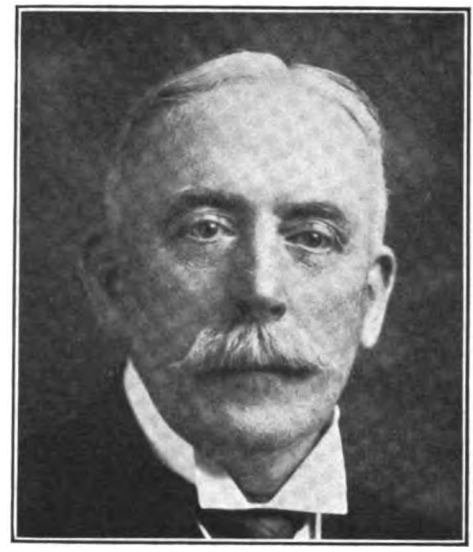
ern Pacific will be looked upon with extreme disfavor by the Department of Justice. The Southern Pacific is willing to sell the Central Pacific, as provided for in the original plan, to the Union Pacific, but here enters the California Commission with a demand that any such sale shall recognize the rights of the Union Pacific to the use of the Benecia cut-off. Without such a provision the Commission will not give its approval to the sale. The inclusion of this feature, however, naturally makes the Central Pacific less attractive to the Union Pacific and it is understood that a cut of $12,000,000 has been made in the offer made to the Southern Pacific for the Central. This offer is not satisfactory to the Southern Pacific directors and so the matter hangs, pending the definite action on the part of the Department of Justice whose attitude is still elusive.

THE WORLD WIDE INFLUENCE OF THE U. S. STEEL CORPORATION

The testimony in the hearing of the Government's suit to dissolve the United States Steel Corporation has, of late, strongly favored the corporation. President James A. Farrell has proven the strongest witness in behalf of his company. President Farrell made his reputation as a salesman and above all a salesman in foreign trade. He testified on May 13th that one of the chief purposes of the organization of the company was a development of the export trade of its subsidiaries. President Farrell showed that in 1901, the first year of the company's existence, its export business was only 292,000 tons. In 1912 this business had increased to 2,246,600 tons, valued at $92,000,000. Ninety per cent of the country's foreign trade in steel was handled by the United States Steel Corporation. Contrary to the practice of most American manufacturers who enter the foreign trade field only when the domestic market is insufficient to keep their capacity employed, the United States Steel Corporation has made a continuous effort to build up its foreign business which, in President Farrell's opinion, is largely responsible for its success. In the case of the Carnegie Steel Company, to show how considerable is the foreign business which has been won, the export trade amounts to 24 per cent of its entire production. The corporation has 268 agencies located in all parts of the world, as many as 1,800 special steel products are manufactured by the United States Steel



JAMES A. FARRELL,
President, United States Steel Corporation.

Corporation to cater to the various needs of the foreign customer and many of these are made exclusively for this purpose, and it has won its way to a large and flourishing business in foreign lands in the face of the most determined opposition.

It is evident that no single member of the United States Steel Corporation, nor any of its competitors, could carry on a campaign for foreign business on the same comprehensive plan as is possible for the Steel Corporation. Manufacturing a vast variety of products and possessed of immense financial resources, it is able to plan and carry out a world-wide campaign for the exposition of foreign trade. The success of the corporation in the export trade will be one of the strongest arguments in favor of its continuance. This success, as already remarked, is not the result of monopoly but has been won in the face of severe competition.

THE GROWTH OF THE PARCELS POST

The Parcel Post business of the Postoffice Department continues to grow with astonishing rapidity. Reports received at the Postoffice Department indicate that 59,500,000 parcel post packages were sent through the mail in April, a gain of approximately 54 per cent over January, the first month of operation. At the New York postoffice alone from January 1st to April 15th $1,026,000 worth of parcel post stamps were sold, and reports for the first two weeks of April at this of-

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CONGRESSMAN DAVID J. LEWIS OF MARYLAND,

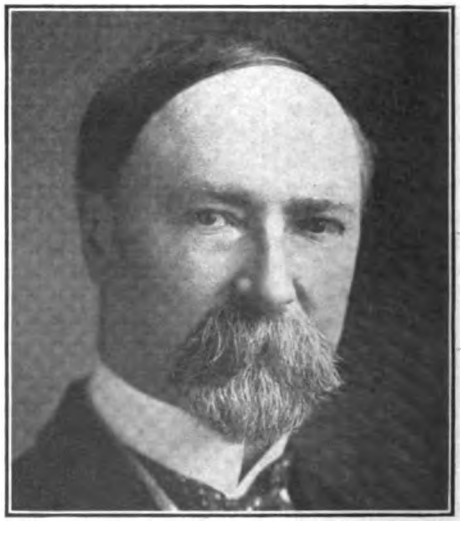
who suggests increasing the weight limit of the Parcel Post from eleven to one hundred pounds.

fice show that the ratio of increase is being kept up to 42 per cent monthly for incoming and outgoing business. In three months, at the New York postoffice, the values placed on articles insured was about $1,880,500. The value of merchandise so far shipped from New York City by parcel post would be about $51,000,000. The rapid growth of this business strengthens the demand that its usefulness could be extended. A recommendation is made to Postmaster General Burleson and the National Parcel Post Commission by Representative David J. Lewis, of Maryland, which would increase the weight limit from 11 to 100 pounds on all packages to be collected and delivered, and removes the weight limit on packages which are to be delivered and will be called for at postal terminals. Mr. Lewis also proposes a simple system of zones, a radical reduction of rates and various other amendments to the system which will practically do away with the parcels business of the express companies.

An interesting fact to be remembered in connection with the prospect of eliminating the express companies from the business which has hitherto belonged to them, is that only about 45 per cent of the net revenues of these companies have come from their transportation business. The 55 per cent comes from non-transportation activities. According to Mr. Walker D. Hines, counsel for the five express companies: "More than half the total net returns represent income from investments, and earnings on non-transportation and foreign business, checks for travelers, investments of former earnings in real estate, stocks, bonds." This business the postoffice does not propose to take from them.

WATERWAY DEVELOPMENTS

Divergent views regarding the right of the United States to exempt its coastwise vessels from the payment of Panama Canal tolls are being expressed at the various meetings of public bodies where this question is discussed. In a paper read before the seventh annual meeting of the American Association of International Law, for example, Richard Olney, former Secretary of State, held that this country was entirely within its rights as the owner of the Canal to make whatever rules it desired regarding the Canal. Mr. Olney declared that the "all nations" clause of the Hays-Pauncefote treaty referred only to the "customers" of the Canal; that since this nation could not be both customer and owner, the United States was not supposed to be included in the words "all nations." On the other hand, former Vice-President Charles W. Fairbanks, in an address on May 1st before the American Peace Conference, characterized the question as "one which from every consideration of national good faith and national honesty should be settled by ourselves, and if we rightly understand it there can be no doubt it will be settled in entire harmony with our manifest national



FORMER VICE-PRESIDENT CHARLES W. FAIRBANKS,

who asserts that the United States is under moral obligation to admit all ships to the Panama Canal on equal terms.

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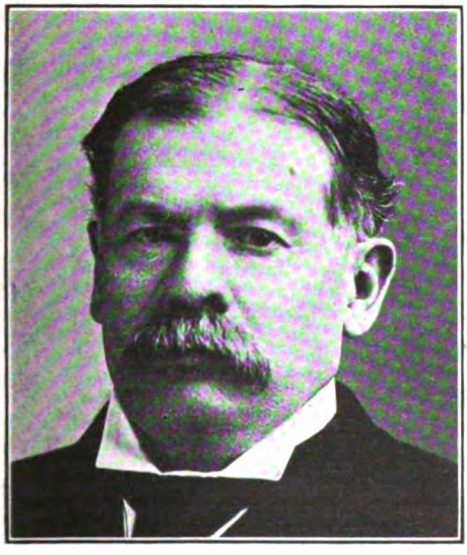
duty." "The United States," he continued, "is under moral obligation to admit the ships of other nations to the Panama Canal on the same terms on which it admits American vessels."

It is significant of the final outcome of the discussion, however, that followers of all shades of opinion, holding the most divergent views as to the rights of the United States, are agreed that the controversy should be left to the disposal of an impartial tribunal for its final settlement.

Judge Holt, in the United States Circuit Court, on May 21st, in connection with the claims for $16,604,731 filed against the White Star Line in connection with the Titanic disaster, held that the White Star Line has no right to the benefit of the American law of liability. The attorneys for the White Star Line have been confident that the Federal Court limited the liability of the White Star Line to approximately $97,000, the sum stipulated in the report of Special Commissioner Goodrich as the interest of the White Star Line in the Titanic. Judge Holt claimed that the English law should govern in this matter, that the liability of the owners of the Titanic is to be determined by the law of the country to which the vessel belongs, namely, England. According to the general principles of maritime law, no such exemption can be claimed by the White Star Line.



RICHARD OLNEY,
Former Secretary of State,
who declares that this country is entirely within its rights to make whatever rules it desires regarding the Canal.

GEORGE A. POST,
President of the Railway Business Association.

DECREASE IN RAILWAY SECURITY ISSUES

The Railway Business Association has recently issued a bulletin in which is set forth the results of a study made regarding the relative decline in the issue of railway securities during the past few years.

"The railroad share of total new securities issued has been declining sharply." This is the conclusion of a study of railway credit by the Railway Business Association, published in a Bulletin, "Shippers and the Advance in Freight Rates." The railroad proportion of total issues, says President Geo. A. Post, "was in 1912 the lowest of the decade, while other corporations issued their highest. There is something the matter with railway credit."

The Bulletin shows that from 1909 to 1912 the railroad share of all securities dropped from 62.4 per cent to 19 per cent. In 1909 the railway securities issued were $601,535,045 more than the non-railroad, and in 1912 the non-railroad securities issued were more than four times the railroad securities.

"Does the public want the roads to overtake traffic and go on ahead as in the past? This is for the public to say, and it is a perfectly proper function of administrative statesmanship for the Commission to heed public demand on that point."

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Contemporary Opinion

Railroads and Prosperity.

THE Eastern railways' application to the Interstate Commerce Commission for an increase of 5 per cent in their freight rates has received strong support by the daily press throughout the country. It is apparent that many newspaper editors not only see justice in the request of the carriers, but have a keen appreciation of the fact that the drift of railway earnings and expenses have recently been such as to indicate that unless the railroads are permitted to advance their rates, the check to the transportation industry will be so severe as to seriously cripple the general business and prosperity of the nation. Since the railroads' application there have been an unusually large number of editorials published in favor of this advance. A few, however, will suffice to show the attitude which is being taken by many editors on this question.

The Philadelphia *Ledger* says:

"More people are affected directly by an award of the Interstate Commerce Commission than by a decision of the United States Supreme Court. Thus when the railroads shall ask permission to increase freight rates five per cent the yes or no of the Commission may mean prosperity or hard times for many million people.

"This question of rates should be treated on the broadest possible scale. The country cannot afford to strangle or unnecessarily annoy its greatest single industry except agriculture. The welfare of the entire nation is so closely interwoven with the welfare of its tremendous railroad system that one cannot be hurt without as grievously wounding the other.

"No one can escape the conviction that in the past few years the railroads have been put into thumb screws. They have been forced to increase wages several times since the 1907 panic, so that to-day the railroads of the United States pay not only far greater wages than are paid in any other land, but much greater than were ever before paid in this country. Laws have been enacted which compel them to better their equipment and to safeguard their tracks. Public clamor has demanded the most lavish terminals—buildings that rival in splendor the best the world ever saw.

"In every possible direction have the roads been forced to expand and to spend more of their earnings. Wages, track and equipment, each and every one has cut more and more into revenue. The roads are powerless to increase passenger fares or freight rates. At the same time they are powerless to reduce expenses. The sequel is that while this country has been blessed by the most bountiful times ever witnessed, the railroads have not been able to share in it.

"Net profits earned on the outstanding capital stock do not rise. On the contrary, they are falling. If the stockholder were the only one to suffer the case would not be so serious.

"But the whole country rises and falls with the railroads. It has been so for half a century and is so to-day. When roads earn great sums they spend the money in countless ways. The steel mill, the nail factory, the locomotive works, the car builder, the coal mine, the timber owner, the contractor, all feel the effects instantly. Prosperity of the roads carries immediately good cheer to millions of workers who are not employed by them.

"When the railroads are poverty-stricken and curtail their outlay every other industry in America feels the jolt. And they must curtail them when the margin over necessary expenses dwindles to near the zero point. It is impossible for the railroads to keep on increasing wages and other expenditures without also increasing income. Bankruptcy would be the inevitable sequel.

"When the Interstate Commerce Commission takes up this freight rate request it is bound by every instinct of national welfare to consider it in the broadest possible way. The pastime of bullying railroads has ceased to be popular, because it is too dangerous. The Commission can do the country a very exalted service by dealing justly with the railroads without any unnecessary delay."

In *Leslie's Weekly* appears the following:

"It seems very simple to see the passenger trains run in and out of the station; to order the freight car and send the grain to market; to telegraph to the nearest large town for supplies, and in 24 or 48 hours have them delivered. But it is not so easy and simple as it seems, and there is danger to-day that the next great uplift in business in the United States will find the railroads, as a whole, sorely taxed to furnish the transportation needed for the commerce of the country. Why? Because a misdirected public opinion is demanding rates too low, taxes too high, wages too high, service too elaborate, and there are not cents enough in the dollars to meet all these obligations and still permit the business to be attractive enough so the man with the dollar will invest it. Our American railroads have done good work, and can do better, and it is to the farmers' selfish interest to see that they are so treated that they will be ready at all times to handle business. To be ready requires constant expenditure."

The New York *Mail* is of the opinion that:

"There seems to be justice and common sense in the proposed application of the Eastern railroads to the Interstate Commerce Commission for permission to make a 5 per cent increase in their freight rates.

"The time has come when Government recognition of rates should be justified by a spirit of fair dealing and a recognition of actual conditions.

"Nowhere in the country is there a sign of public opinion that favors a policy of discouragement or actual hostility to legitimate railroad enterprise.

"There is no reason why sound railroad enterprise should be harassed or destroyed.

"There is no reason why the railroad companies should not be able to make improvements necessary to the country's progress and prosperity, to allow reasonable advances in wages and to meet unavoidable losses.

"There is no reason why the transportation facilities of the American continent, so vital to its industry and commerce, should be gradually forced into unprofitableness to meet the purposes of political demagogues and fanatics.

"It is not merely the falling prices of railroad

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securities in the stock market that signals the danger of the present iron policy of restricting railroad rates. The refusal of the public, both here and in Europe, to invest money in new bonds or other securities of the foremost and best-managed American railroads, save at almost prohibitive prices, shows that we have passed the line of prudence and reason in restricting the profits of our transportation systems.

"While the tide of wages keeps rising and must be met, if the public is to be saved from the engulfing calamity of a general railroad strike, one group of Eastern railroads is called upon to repair a loss of more than $20,000,000 caused by the great floods in Ohio and Indiana.

"In the light of these and other similar facts it seems plain that the Interstate Commerce Commission should give dignity and strength to the law by a reasonable and fair use of its powers. No good can be accomplished by crippling one of the chief means through which the productive life of the nation is made effective."

In the Baltimore *News* is found the following:

"Prosperity for the railroads, from the nature of the case, cannot mean mere profit-taking. It means an ever-increasing necessity to expand their equipment and organization to take care of increased business if they are to keep up with the procession. Indeed, if they are managed in the most enlightened way, larger receipts impose the necessity for larger expenditures to anticipate the future. For them, living from hand to mouth is little better than suicide.

"Not long ago a proposed increase of five per cent in freight rates would have stirred the shippers to almost united opposition. It is significant of a better understanding on both sides that business men are now giving respectful consideration to the request of the railroads. Lack of cars in busy seasons, slow service and inadequate terminals mean restriction for shippers when they have their best opportunities.

"But, in another aspect of the problem, the shippers are only part of the body-politic which has undertaken to impose burdens on the railroads through awards of higher wages by means of public arbitration, and through requirements of better equipment and service imposed by the Interstate Commerce Commission. There is now, for the first time, an implied obligation to permit the rates to conform with larger expenditures.

"It may be possible, as Vice-President Randolph, of the Baltimore and Ohio, has pointed out, to pay dividends on the basis of present rates, but his statement that improvements will be seriously checked unless an increase in freight charges is allowed presents a serious question, which should be weighed and decided in fairness. The Government having gone so far toward preventing the mere exploiting of railroads by financial manipulation, it can better afford to listen considerately to the story of their proper needs.'

The New York *Journal of Commerce* states that:

"The prevailing tone among shippers is evidently in favor of some moderate increase in railroad rates. This seems to be the plain inference to be drawn from the facts as stated with regard to the development of opinion and policy among the various organizations. Some important exceptions doubtless are to be noted, but the chief factors pretty clearly take the indicated point of view. The change in attitude is very plainly marked as compared with that which prevailed four years ago, when shippers bent their utmost energies to prevent the adoption of a higher rate schedule by the Interstate Commerce Commission. Reduction of railroad earnings as compared with obligations, growth in costs of capital, and the lowering of both construction outlay and new equipment purchases by the roads have afforded unanswerable arguments to those who regarded the demand for a rate increase as merely the fruit of a desire to get more profits without justification."

Again the New York *Journal of Commerce* says:

"There seems to be every just reason for this demand. There is an immense need for general railroad betterments, the lack of which has embarrassed their operations which at an early date in the near future will have to be met. Much additional rolling stock, improvements in roadbed, an immense amount of new metalling, terminal improvements, all these have become imperative. Could they all be done at once, it is estimated by the most competent that the total would run into nine ciphers. What the roads must have is that established increase in prosperity which would warrant them in securing long-term loans and that increase in security values which would tide them over the earlier struggle.

"This is not the sole plea which they claim they have the right to present before the Commission. Their demand for a 10 per cent increase was refused in 1910, but they can offer now a much stronger presentment. That is the increasing cost of railroad operation and the steady, almost inevitable, advance of wages. This is illustrated by the recent arbitration awards. The Vanderbilt commission gave the engineers last year about $3,000,000 more on the Eastern roads and the recent firemen's award added upward of $4,000,000 more. The trainmen and the conductors are now in line for similar increases, and it is believed that when they have formulated specific demands, a situation will be created that will carry the amount several millions higher. One successful arbitration in such cases is pretty sure to predicate others.

"To meet these added burdens, which, with the high cost of living, are inevitable, the railroads claim with much show of justice, there must be increase of income. It is closely figured that if the gross income of the carriers has increased, their expenses have augmented much faster and cut down the net to a minimum, which does not make the railroad business as a whole nearly as encouraging to investors as are many other lines of business which require enormous capitalization."

Railway Wage Regulation.

THE continual and insistent demand by railway labor for increased wages continue to emphasize the importance of the passage of some regulative laws by which these matters can be handled in a way satisfactory to the interests of all concerned, of whom the general public form no inconsiderable part. The day will come when the question of increasing railway wages must be based on something more tangible

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than the arguments advanced at recent hearings, or else a condition so intolerable will develop as to involve the entire business interests of the country. In discussing the far-reaching influences of railway wage adjustments, the Springfield (Mass.) *Union* has the following to say.

"The issues involved in these wage increases are not issues between certain classes of labor and individual corporations employing them. They are more far-reaching and involve the very business interests of the nation at large through the additional tax they impose upon the transportation systems of the country and have a direct bearing upon the work of the Interstate Commerce Commission. This fact is recognized in the Erdman act, but it already has been shown that the Erdman act is faulty. Inasmuch as legislation to correct the weakness of the Erdman act is necessary, why not take a long step in advance and create a new arbitral body—possibly under the new Department of Labor, but so constituted as to work in harmony with the Interstate Commerce Commission, which shall have the power to arbitrate these wage difficulties in which interstate public utilities corporations are involved and, if possible, create a system under which wage scales of these utilities may be established on some sort of a contract basis extending over a certain period of years and subject to variation during such period only on certain established conditions.

"It is true that in large measure this would be establishing governmental regulation of wages in such public utilities, but is that not a necessary corollary to governmental regulation of rates in which the wages are such an important factor?"

An Extraordinary Bill.

FEW more striking evidences have been seen of Labor's desire to place railway management at the complete mercy of labor leaders, than the bill recently defeated in the Pennsylvania Legislature, and which is commented on editorially in the following manner by the New York *Commercial*:

"A bill was killed the other day in the Pennsylvania Legislature which, had it passed, would have armed labor unionism, with such power that it would paralyze half the railroads in the country. Fortunately its animus was clearly recognized and though the labor advocates have a pretty strong hold on that body, they were routed 'horse, boat and dragoons.' This proposition was the anti-strikebreakers' bill; and it is said that the American Federation of Labor under the inspiration of Mr. Gompers has it in plan to push this or some similar measure in as many states as possible.

"The bill provided that as a preliminary to securing employment on any railroad, the engineer, conductor, fireman, trainman, or any one employed in operating a road must have had at least eighteen months' experience. Again it required that the applicant for a railroad job should have been employed at least three months on the same road and the same kind of work.

"It requires but little reasoning to see precisely what the result of this kind of labor legislation would be. A strike once started would paralyze any road in the country beyond a hope of resistance. No road could employ men from other roads, or men inexperienced in the particular kind of work to which they might be called to meet an exigency. There would be no resource of force to take the place of the strikers, no possibility of securing legal substitutes. Every engine, every car, every switch, every signaling station, in a word, everything necessary to running a road, would at the dictate of the strike leaders be struck dead for use.

"This extraordinary proposition was so full of venom that though the labor legislators supported it with enthusiasm, it was killed without much loss of time. Even those whose record had been hostile to railroad interests in legislation could not support a measure that would make a walking delegate more powerful than any railroad president through his ability to take railroads by the strangle grip. Probably no such drastic attempt was ever made to constitute labor as the supreme dictator over the transportation interests of a state, and initiate the same paralyzing tyranny everywhere.'

Safe Railroad Operation.

IN these days when it is apparently increasingly difficult to inject the proper amount of discipline in railway operations to insure the safety of the companies' patrons, employes and property, the stand taken by the New York Public Service Commission is gratifying. Commenting on this attitude, as expressed in its annual report, *Financial America* has the following to say:

"The Public Service Commission for the Second District, New York, in its annual report says: 'No permanent safety can be expected in railway operation except through the appreciation by all employes—not only those directly involved in train service, but those who maintain locomotives, tracks and signals—of the importance of their duties and the need of careful attention to every detail of their work.' Not content with this emphatic pronouncement regarding the observance of duty and carefulness by the employe, it admonished the employer in these words: 'No permanent safety can be expected in railway operation except through the appreciation by the railway managers of the necessity of strict discipline and removal of men from the service who fail to meet a reasonable standard of performance of duty in matters involving safety.'

"No matter what safety device may be introduced or installed by a railroad system, individual responsibility remains. In the case of the automatic stop signal the obligation is, in reality, only shifted from an experienced engineer probably to the signal maintainer, who may not be nearly so prudent. Hence, the weight and effect of the Commission's admonition to the railroad employer to enforce discipline by removing instantly men in its service who may be guilty of negligence."

The Proposed Increase of Freight Rates in England.

THE following quotations from news articles in the *London Times* of the dates specified are of interest as relating to existing conditions in the United States:

MAY 5TH:—

"A preliminary notice has just been issued on behalf of the railway companies of the United

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Kingdom to the effect that on and after July 1 the rates for merchandise traffic by goods and passenger trains will, with certain exceptions, be increased.

"This increase is the outcome of the recently passed Railways act, which gives the companies power to raise rates to compensate them for increased expenses as a result of the settlement of the strike of August, 1911."

MAY 7TH:—

"The railway industry alone of any great industry in the country has been deprived by Parliament of the opportunity of passing on to the public what may be called its increasing 'cost of production.' We mean in particular the increased cost of coal, materials, higher wages, Government insurance against accident, unemployment, etc. In other words, all improvement in railway wages and in the conditions of railway employment—and they have, of course, been substantial already—have been effected neither at the cost of the shareholders, or have they come out of the funds provided by improved methods of management.

"If the just demands for further improvement in railway labor conditions are to be met without wrecking the whole financial edifice upon which the railway industry rests, it is clear that the public must pay. If only to secure continuity of railway service, absence of strikes, etc., some moderate increase in railway charges must be established, and this is the policy which the companies are now endeavoring to carry out under the direct authority of Parliament. Opposition will, of course, be encountered, but so long as the companies, acting in unison, are not extravagant in their demands and keep them well within the terms provided for by the new act, we do not imagine that any such opposition can avail when the matter comes before the Railway and Canal Commissioners, as it must do sooner or later.

"Legally and morally the claim of the railway companies is a just one, for *it would be absurd to assume that the railway industry alone can flourish under economic conditions which provide for fixity of its charges to the public on the one hand, and rapidly increasing expenses on the other.*'

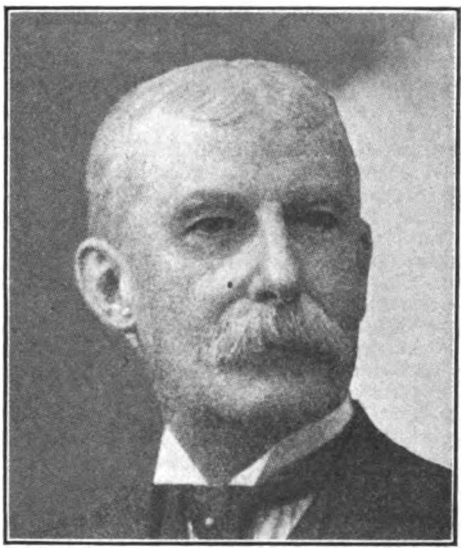
OBITUARY.

Henry M. Flagler.

HENRY M. FLAGLER died at his winter home, West Palm Beach, Fla., on May 20. He was 83. At the time of his death he was chairman of the board of the Florida East Coast Railway, which had been built largely with his money, entirely under his direction and as a part of his general plans for the development of the east coast of Florida.

His chief interest in life in the last fifteen years had been the development of the Florida East Coast, and the building of this railroad which runs from Jacksonville south along the extreme eastern shore of Florida to almost its southernmost end, and is there carried from the main line to the string of keys which ends with Key West. Mr. Flagler lived long enough to see the entire line, including the extension over the keys to Key West, in operation.

The 637 miles of line cost, with the equipment, $39,117,000, and was capitalized at $36,000,000, or about $56,000 a mile. Its earnings from operation in 1912 amounted to $4,427,000, or about $7,134 per mile. Its earnings, after the payment of expenses, rentals and taxes, amounted to $973,000 in the year 1912, or about 2.5 per cent on the actual investment.



HENRY M. FLAGLER.

It is probable that Mr. Flagler never considered his railroad as an investment for the purpose of getting the highest possible interest on his money. It was built for the development of the country through which it runs, and as such it has already proved a success.

E. J. Dedman, who was recently elected vice-president of the Gainesville and Northwestern Railroad, died on the morning of May 16th, at Gainesville, Ga.

Walter W. Aucker, superintendent of floating equipment of the Baltimore & Ohio R. R., died at his home in Baltimore, Md., April 8th, aged 61 years.

Peter E. Bowman, formerly superintendent of the New York Division of the New York, New Haven & Hartford, died on May 9th, at his home in New Haven, Conn., at the age of 65.

G. Asheton Carson, president of the Catawissa Railroad, a subsidiary of the Philadelphia & Reading, died recently at Philadelphia, Pa., at the age of 66.

George E. Chase, southwestern passenger agent of the Chicago, Milwaukee & St. Paul Ry., at Kansas City, Mo., died May 3rd, aged 45 years.

William Edward Davis, passenger traffic manager of the Grand Trunk System, died on May 15th, at his home near Ste Anne de Bellevue, Quebec.

Henry C. Dickson, traveling passenger agent of the Delaware, Lackawanna & Western, with headquarters at Chicago, died suddenly in that city on April 16th, aged 50 years.

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A Reasonable Return Upon the Value of the Property Devoted to the Public Service

By EDWARD SHERWOOD MEAD, PH. D.

IN the words which form the title to this article, Mr. Charles A. Prouty, speaking for the Interstate Commerce Commission, on February 22, 1911, stated the problem presented to the Commission by the petition of the trunk lines that they should be allowed to advance their rates. "We are to determine," said the Commission, "whether the net return of these carriers upon the value of their property devoted to the public service will be sufficient without an advance in their rates."

After an exhaustive review of the testimony presented on behalf of the railroads, and the arguments advanced against them, the Commission reached the conclusion that "these defendants have not established such a need for additional revenue as justifies, at this time, an increase in these rates." This decision was, however, without prejudice to the railroads, the Commission holding that:

"It has been several times stated in the course of this discussion that in view of the complex character of this problem, nothing but an actual test can satisfactorily determine the financial results from the operations of these several carriers. There is no evidence before us which establishes the necessity for higher rates. The probability is that increased rates will not be necessary in the future. In view of the liberal returns received by these defendants in the past ten years, they should be required to show with reasonable certainty, the necessity before the increase is allowed. If actual results should demonstrate that our forecast of the future is wrong, there might be ground for asking a further consideration of this subject."

The railroads have again petitioned to be allowed to make a five per cent advance in all the rates in Official Classification territory, equivalent to a $40,000,000 increase in net revenues. If their officials were not convinced that the "actual test" asked for by the Commission, had demonstrated that the Commission was wrong, the railroads would not make an attempt to increase their rates. What then is the nature of this experience of the last three years upon which the railroads must rely if they are to induce the Commission to reconsider its decision of 1911?

This question must be answered with reference to the reasoning upon which the Commission's former refusal was based. In substance this was as follows: The Pennsylvania, Baltimore and Ohio and New York Central are typical trunk line railroads. Their freight revenues were nearly one half of the total freight revenue in Official Classification territory. "Whatever rate might reasonably be imposed upon these three systems must be held to be a reasonable charge for that service by all lines."

The Commission defined a reasonable return upon the property of these three companies to be a margin of profits equivalent to certain earnings upon their common stocks. For the Baltimore and Ohio it was held that "the sum remaining after fixed charges, including as a fixed charge the dividend upon the preferred stock should be equivalent to between 7 and 8 per cent upon the common stock" or about $2,280,000 —1½ per cent on the present common stock. For the Pennsylvania, a margin of $18,000,000 over common stock dividends was held not to be unreasonable. For the New York Central the Commission found that, after allowing for an expected increase in operating expenses due to the higher wage scale which went into effect in 1910, the company could pay its 6 per cent dividends with about $1,500,000 to spare. For several reasons, including an admitted inflation of the capital of the constituent companies and of the New York Central at the time of the consolidation in 1869, amounting to $57,000,000, on which stock issued without consideration to the company, $120,000,000 in dividends had been paid, and not omitting to mention the fact that the New York Central was burdened with unprofitable leases, losses on which the public should not be expected to make up to its stockholders in higher rates, and having regard finally to the exceptionally strong position of certain of the New York Central's subsidiaries, the Commission reached the conclusion that this margin of $1,500,000 over the dividend requirement was not so small as to warrant an increase of freight rates in order to increase it.

We have then this standard by which to determine the reasonableness of rates in Official Classification territory. If it can be shown that existing rates at the present time yield these three companies substantially less than the amount of profits, which the Interstate Commerce Commission in 1911 declared to be reasonable, then the carriers will have established their case. If, on the other hand, the dividends of these three typical companies, notwithstanding higher operating costs and increased fixed charges are still protected by the same relative margins of safety as those which the Commission considered adequate in 1911, then the railroads have lost their case before they open it.

The facts of railway profits for the last year for which statistics are available are as follows for each of the three companies under examination:

PENNSYLVANIA RAILROAD COMPANY—YEAR ENDING DECEMBER 31, 1912.

Net income	$42,153,964
Dividends 6%	27,198,918
Balance	$14,955,046

BALTIMORE AND OHIO—YEAR ENDING JUNE 30, 1912.

Balance of net income on preferred dividends	$11,543,000
Dividends on common 6%	9,121,073
Balance	$2,421,927

NEW YORK CENTRAL AND HUDSON RIVER RAILROAD—YEAR ENDING DECEMBER 31, 1912.

Balance of net income over all charges	$13,879,837
Dividends 5%	11,136,465
Balance	$2,743,372

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Amount required to pay 6%, the standard accepted by the Commission in 1911	$13,563,558
Balance—over 6%	316,279

Summarized, these results are as follows:

BALANCE OF NET EARNINGS OVER CHARGES ACCEPTED BY THE COMMISSION AS STANDARD IN 1911.

Baltimore and Ohio	$2,280,000
Pennsylvania	18,000,000
New York Central	1,500,000

BALANCE OF NET EARNINGS OVER CHARGES FOR LAST FISCAL YEAR.

Baltimore and Ohio	$2,421,927
Pennsylvania	14,955,918
New York Central	316,279

From these figures it appears that, measured by the standard accepted by the Interstate Commerce Commission, the Baltimore and Ohio is in about the same relative position as in 1910, the New York Central has suffered a severe decline in its margin of safety, and the margin of safety of the Pennsylvania has seriously decreased.

On the basis of the Commission's reasoning in 1911, and taking no account of changes in conditions affecting the railroads since that time, the carriers are evidently entitled to an increase in rates.

The situation of the carriers is, however, radically different from that of 1910. Then their earnings were large and increasing, reflecting a condition of general prosperity. Investment conditions both in America and Europe were satisfactory and financing was easily accomplished. The labor situation was generally satisfactory, and in the field of public regulation, a reaction in favor of the railroads was in progress. To-day, conditions have entirely changed for the worse. Railway earnings are stationary or declining. Weak companies, if still solvent, are facing financial difficulties. Strong companies are twisting and turning from one emergency expedient to another in the attempt to finance the maturing obligations. The investment situation at home and abroad has seldom been so bad. Railroads must apparently pay five per cent for money, and will have difficulty in filling their requirements even at that high figure. The attitude of labor was never more menacing. Its insistent demands have forced up operating costs without any cessation of the pressure, and these demands are apparently endless. More than this public regulation has taken a new turn. Greater safety in travel, improved working conditions for employes, even the compulsory provision of larger facilities, for the convenience of shippers, such regulations as these are multiplying, and each one adds to the cost of railway operation.

The situation of the railways is plain. It cannot be denied that as a whole their financial position is strong and sound. They are in no danger of failure. They can sit still, limit the scope of the improvements, keep down new construction to the irreducible minimum, and wait till the slow growth of business forces their earnings up to a figure which will make it possible for them to provide the necessary facilities. On the present scale of earnings however, the vast programs of improvement which they have drawn up, and whose execution will do so much to advance the prosperity of the whole country, cannot be carried through. Most of the feature numbers on these programs must be postponed, indefinitely deferred.

The railroads have made a fair and reasonable proposition to the public represented by the Interstate Commerce Commission. "If you will allow us to increase our rates we shall use the resultant improvement in our credit to improve our plant. We shall employ more labor, spend more for materials, make large permanent additions to the transportation plant of the United States. Without this increase in rates, however, these expenditures cannot be made." It is to be hoped that the Commission will recognize that conditions since 1910 have radically changed, and that the advance in rates which was not then conceded can now be made with due regard to the controlling consideration in all matters of this character and the public welfare.

Vast Public Interests Involved in Rate Question

By SLASON THOMPSON,
DIRECTOR, BUREAU OF RAILWAY NEWS AND STATISTICS.

WHILE the application of the railway companies operating in the territory east of Chicago and north of the Potomac and Ohio rivers to the Interstate Commerce Commission for permission for an advance of five per cent in freight rates covers only one fifth of the total mileage and less than half the freight traffic of the United States, the future of the entire transportation industry of the country waits upon its favorable decision.

Since the previous application by both Eastern and Western roads was denied, the reasons for an advance already pressing have been accentuated, while the forecasts upon which the denial was based have not been realized. In concluding his opinion in the Eastern case, Commissioner Prouty said:

"If actual results should demonstrate that our forecast of the future is wrong, there might be ground for asking a farther consideration of this subject."

In deciding the Western case, Commissioner Lane said:

"We do not say that the carriers may not increase their income. We trust they may, and confidently believe they will. If the time does come when, through changed conditions, it may be shown that their fears are realized, or approaching realization, and from a survey of the whole field of operations there is evidence of a movement which makes against the security and lasting value of legitimate investment and adequate return upon the value of these properties, this Commission will not hesitate to give its sanction to increases which will be reasonable."

The condition upon which both cases were de-

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cided was briefly expressed by Commissioner Lane in these words:

"It now appears probable that at the end of the fiscal year 1911 the carriers here involved will in the main enjoy earnings as high as those they had in 1910—the highest in their history."

Not until July, 1912, were the official figures available by which to test the accuracy of this sanguine prophecy. For all the railways of the United States, here is what they showed:

Year ending June 30—	1910.	1911.
Operating revenues	$2,750,667,435	$2,789,761,669
Operating expenses	1,822,630,433	1,915,054,005
Net oper. rev.	$928,037,002	$874,707,664
Net from outside operations	2,225,455	1,815,193
Total net rev.	$930,262,457	$876,522,857
Taxes accrued	98,034,593	102,657,157
Operating income.	$832,227,864	$773,865,700
Decreased operating income		58,362,164

Thus was the bright augury on which the denials of advances were predicated overshadowed by a decrease of nearly $60,000,000 in the operating revenues of the railways. This, as the reader will perceive, was due to an increase of nearly $93,000,000 in operating expenses and over $4,600,000 in taxes, whereas operating revenues increased less than $40,000,000.

But this only partly reflects the confirmation of the forebodings upon which the railways based their applications. The figures for 1911 covered an operated mileage of 246,124, against only 240,830 miles in 1910, an increase of no less than 10,944 miles of track of all descriptions. As each mile of track has come to mean a capital expenditure of fully $42,000, the railway plant devoted to the public service in the United States in 1911 represented an increased investment of at least $450,000,000 over 1910. The Commission's figures show an increase of $596,980,738 investment in road and equipment for 1911 over 1910, and of $791,802,843 in gross capitalization, of which over $434,740,000 was in funded debt.

It is therefore a safe estimate to place the increase in the cost value of the railway property irrevocably dedicated to public use during the fiscal year 1910-11 at $600,000,000. On a 5 per cent basis this added $30,000,000 to the capital charge, where, as above seen, there was a decrease of $60,000,000 in the fund earned for its payment.

Labor Exacted its Full Share.

In the meantime the compensation paid by the railways to their employes showed the following substantial advance:

	Number of employes.	Total Compensation.
1910	1,699,420	$1,143,725,306
1911	1,669,809	1,208,466,470
Increase	*29,611	$64,741,164

*Decrease.

The increase in compensation in the face of a decrease in the number employed resulted from the advance in the rates of wages.

So much for the year upon whose roseate prospects the Commission in 1911 based its refusal to grant an advance in freight rates.

No Relief in 1912.

Nor did the succeeding year bring any "surcease of sorrow" to the railways. So far as can be learned from incomplete returns, something like 3,000 miles of line and 7,000 miles of track were added to the plant, accounting for an increase of over $245,000,000 invested in road and equipment. Therefore, between 1910 and 1912 there was a sum equal to at least $845,000,000 expended to provide increased railway facilities for the people of the United States. This alone called for an increase of over $42,000,000 in income. That it was not forthcoming is shown in the following comparative statement:

Year ending June 30—	1910.	1912.
Operating revenues	$2,750,667,435	$2,873,279,985
Operating expenses	1,822,630,433	1,990,061,981
Net oper. rev.	928,037,002	883,218,004
Net from outside operations	$2,225,455	$1,243,318
Total net rev.	$930,262,457	$884,461,322
Taxes accrued	98,034,593	121,797,743
Operating income	$832,227,864	$762,663,579
Decrease in operating income		69,564,285

This signified that for the fiscal year 1912, with an increase of about 8,300 miles of line and 18,000 miles of track, the railways in two years had $70,000,000 less income with which to meet annual capital charges, to which at least $42,000,000 had been added. In other words, at the close of that fiscal year they were $112,000,000 worse off than in 1910, when they made their previous application for an advance in freight rates.

Caused by the Advances in Wages.

That this condition was in a large measure due to the successive advances in the wages of employes is shown by the following statement:

	Number of employes.	Compensation.
1910	1,699,420	$1,143,725,306
1912	1,728,603	1,268,977,272
Increase	29,183	$125,251,966

As the yearly compensation in 1912 averaged $734 per employe, the increase in the number employed accounts for an increase of only $21,420,242 in the pay roll. This would leave a balance of $103,831,724 increased compensation as due to the advance in the wage rates. Independent computations based on the number of days worked place the increase in compensation due to higher rate of wages at $78,000,000.

Up to this point the advances in wages granted by the arbitrators to the engineers and firemen during the current fiscal year have cut no figure. Both are now in effect.

The Fiscal Year 1913.

The phenomenal gross earnings of the railways for the eight months ending February 28, 1913, have been seized on by the Washington representatives of the shippers as an argument against any advance in rates. Regarded in the light of actual conditions, they afford anything but a reassuring index to the railway situation. The eight months in question were marked by the heaviest traffic ever known to American railways, concurrent with the most favorable operating fall and winter weather ever recorded.

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And yet the net income for the eight months was only $30,000,000 more than for the corresponding months of the fiscal year 1910, with 10,000 more miles of line and 26,000 more miles of track, representing $1,000,000,000 increased investment devoted to the public service. In the face of such exceptionally favorable conditions, the operating ratio, including taxes, for the eight months was 71.51 per cent, against 68.62 per cent for the corresponding months of the fiscal year 1910. This ratio for March, 1913, the last month reported, exclusive of taxes, was 73.94 per cent, against 71.01 per cent for the corresponding month in 1912, 69.61 per cent in 1911 against 67.14 per cent in 1910, and 66.21 per cent in 1909.

When the returns for the second half of the fiscal year 1913 are compiled, it will be found that the storms and floods of March and April will have nearly, if not quite, absorbed the gains in net income shown for the preceding eight months.

What the Situation Portends.

The case for the railways in their application for an advance in freight rates, in its final analysis, rests on the demand of the American people for adequate and efficient transportation facilities. During the year 1913 the *Journal of Commerce* estimates that $310,000,000 will be required to meet maturing railway obligations, while facilities and equipment to handle increased traffic demand the immediate investment of at least $500,000,000 new capital. The rate of interest on this financing is nearly 1 per cent higher than it was ten years ago. The city of Philadelphia has to pay 4 per cent where it formerly borrowed at 3 per cent. The city of New York pays 4½ per cent where it formerly paid 3½ per cent.

The demands of labor have reached a percentage of railway earnings that, in the language of Commissioner Lane, above quoted, "makes against the security and lasting value of legitimate investment and an adequate return upon the value of these (railway) properties."

A denial of relief will be equivalent to a notification to the railways that they must look to a reduction in wages for a restoration of the equilibrium between railway labor and railway capital, even should such restoration involve the public in the disaster of a colossal railways strike.

While the weighing of these considerations is with the Interstate Commerce Commission, their final determination rests in the popular will.

Where the advance in rates is a present necessity, to thoughtful students of the situation this must appear a temporary palliative. Before this question can be settled permanently, the people will decree that employes of an indispensable public service, subject to public supervision and regulation, are engaged in a public service which they cannot quit in a body to enforce any demands whatever. The railways have not ventured to insist on this, but ultimately the public, for its own protection, will, just as surely as, under state ownership, it would.

If in the evolution of social order human wants require that railways shall be run under public regulation *without lockouts*, human needs demand that railway wages shall be regulated *without strikes*.

At least that seems to the writer the unavoidable logic of the situation.

The Railroad Regulation Question From An Operating Standpoint*

By W. L. PARK,
Vice-President, Illinois Central Railroad.

IT has been said there is nothing more cowardly than a million dollars, unless it be two million. Already there is to be noted in the money markets of the world that discrimination against railroad investments foretold by those who knew the effect of injudicious regulation. The railroads do not "make" money; they collect and distribute it. Out of every dollar they take in ninety-five cents is returned to the public almost immediately in wages, supplies, taxes and interest. There is no magical box from which unlimited wealth can be taken to pay for the freak laws and requirements. The public must pay for it. The enormous recent increase of four million dollars in wages of already well paid employes has raised prices thirteen million dollars, according to ex-Secretary of Commerce Nagle, in his report to Congress. Railway taxes are increasing six million dollars per annum; fuel and other supplies are going up until surpluses are about exhausted and rates must be materially raised or these inroads on the revenue stopped.

The demand for both service and safety is becoming so acute that it is well to ponder who and

*From a paper read before the Transportation Club of Peoria, Ill.

W. L. Park.

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what is mostly responsible for anything that may be lacking in these particulars.

Through the curtailment of surplus earnings by unreasonable regulations and imposition of costly, pernicious and aesthetic laws and orders, have not our Legislatures and Railway Commissions assumed the responsibility of protecting the business interests? An analysis of the majority of enactments affecting railroads indicate all sorts of requirements which load down the railways with increased operating expenses and revenue curtailments to a point where some of them have staggered on to the precipice of a receivership and all that it means in retrogression of service and confiscation of railroad investments.

After years of this practice and consequential curtailment of available improvement funds, attention is now being turned to coerce beyond possibility of compliance the immediate provision of facilities which make for real safety and betterment of transportation facilities—provisions which the operating men have been advocating and making of their own accord for years back, so far as the available money would permit. No one bemoans more than the operating man that railway regulation (or irregulation, should we not better call it) has taken away from him so vastly the means by which these measures for real safety and service can be made.

The major responsibility for American railroads not being more completely equipped with stable track, automatic block signals, interlockers, steel cars and more adequate facilities to perform the transportation required by present commerce rests not with the manager, but with those who have foisted such ill advised and costly laws and orders upon the railroads.

Contemplate the vast sums that have been taken away from the railroads, uncalled for, in rate reductions and unreasonable laws and decisions—sums which would have been more than ample to have brought the railroads to a high state of physical perfection.

The commencement of this depletion of funds was started when many of the lines were in an extremely primitive condition, and in which condition many of them will always remain owing to the small margin of profit, or absence of surplus, out of which the property may be brought to a higher state of physical condition.

Does the constant cutting of rate after rate tend to promote safety, or insure adequate supply of cars and the desired movement thereof? Yet every Commission points with pride to this pseudo preservation of public welfare.

Is welfare measured in this manner comparable with what we are now suffering?

Does excess passenger service tend to promote safety, or the best performance of that service which is really needed?

Do depots which are ordered more to meet an aesthetic sense than real need make for safety, or conserve funds used in that manner for use in enlarging those facilities which are actually required to move traffic? A wave of civic pride in the appearance of cities, towns and villages has been sweeping the country. At most points this is first manifested by requests from commercial clubs and other bodies of citizens for a new depot. Finding that such a depot is not required from any consideration of physical discomfort so far as the existing facility is concerned, we point out the inconsistency of the request, which then turns into a demand. At one point on our line we recently authorized a ten thousand dollar depot. This was done not because we could properly spare this amount from other necessary facilities; not because the citizens of the town were suffering physical discomfort; not that we believed money should be spent to please the eye architecturally before it is spent to provide needed facilities, but because of coercion of uplifters and railroad commissions. The plans were gone over by the Town Club and I received recently a letter from the president thereof which read in part as follows: "Unless you provide a steam heating plant, flexotile floors and a tile roof, we will sic the Railroad Commission on you or get out an injunction."

You will agree that is not the sort of co-operative spirit between commercial business men which is required to promote the best interests of both. It is a far cry between that spirit and the spirit which permeates the good fellowship of the Peoria Transportation Club. It is the unnecessary, unreasonable and foolish things we are required to do that are eating the life out of the railroads.

Do full crew bills contribute as much to safety and service as a strong permanent road bed, steel cars or automatic signals? In the State of New York the operating department has but recently had saddled on their shoulders this utterly useless and wasteful "full crew bill," which adds $2,000,000 to their annual expense. This then seemed to arouse the prowess of the legislators across the State Line in New Jersey; they adopt a full crew bill and then try to outdo their neighbors in the matter of "eating" up the railroads by promoting a highway separation bill, saddling the entire cost of $75,000,000 or $100,000,000 upon the railroads. Mark you, that this $2,000,000 to be paid annually as a premium for loafing in the caboose and the seventy-five or hundred million dollars for street and highway separation work must come ahead of any funds which might otherwise be spent for more locomotives and cars and improved terminals and trunk line facilities—the things that this counrty needs more than anything else so far as its almost complete dependence upon transportation is concerned.

A full crew bill is class legislation and special privilege of the most dangerous kind, as it enables one body of workers to seriously affect the economic status of the public at large, and in this instance there is no one that really benefits, unless it may be through a slight decrease in the premium rate of organization insurance.

Occasionally we find a public officer whose integrity and sincere opposition to class legislation makes him speak as Governor Cruse, of Oklahoma, did with respect to the full crew bill he was recently asked to ratify, namely:

"Another thing I have learned to believe is that those who have made a lifetime study of railroad operation are better judges of the proper method of operating them than I am, and I believe that this is equally true when applied to a majority of the members of any legislative body. The trouble in Oklahoma is, and has ever been, that in dealing with public service corporations we have assumed to know more about how properly to operate them than those who have given the matter careful study. Public service corporations need to be regulated and need to be controlled. Oklahoma has undertaken to do this by the creation of a corporation commission and has

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clothed that commission with unusual authority in dealing with such matters. That commission, after having studied the question, is better able to place suitable regulations upon the railroads than is the Governor or the Legislature."

The same bill is now before the Legislature of Illinois and every business man and farmer in the State should insist that it be killed. If more men are needed on the trains, the Railway and Warehouse Commission will request it and their request will receive attention.

Do blinding and signal confusing electric headlights contribute so effectively to safe operation of trains as automatic signals? Careful tests and investigations by unbiased experts and authorities say not and all practical railroad men know positively they do not. Yet fourteen States feel considerable complaisance over having such a law on their statute books, alleged to have been promoted by concerns who have such devices to sell.

Does the recent extension of the Federal Safety Appliance Act, which provides for refinements in freight car construction, do as much to save lives of employes and passengers as the block system and steel cars? This will cost $50,000,000. Think how far that sum would go in promoting real safety and betterment of service. It would purchase fifty thousand freight cars or two thousand of the most modern freight engines.

Do the heavy fines imposed for not submitting unimportant reports through inadvertency of some clerk, or for not releasing a crew from duty under impossible conditions, subserve the public interest more than the essentials?

Is the expenditure of large sums of money by the railroads to protect themselves against unreasonable and unscientific application of the Safety Appliance Laws, relating to minor and insignificant parts of cars or engines, conducive to true economy or right methods of accident prevention? Every experienced railroad man will tell you it is not.

Do laws regulating the kind of cabooses to be used in train operation add nearly as much to the end desired as signals, steel cars, better roadway, bridges, more side tracks, or terminal facilities? Yet sixteen States seem to think so.

Does a recent cut of $25,000,000 a year, which is that much less than is admittedly a fair return for railway postal service, contribute to a physical betterment of railway operation which makes for safety and service?

To all of these every railway manager can answer a conscientious and emphatic "NO."

And now, when every ounce of skill he may have acquired after long years of painstaking and observant experience should be concentrated on getting the greatest amount of transportation out of his restricted facilities, he is obliged to turn instead a great part of his effort to convincing a newly elected body of legislators or railway commissioners that countless laws and orders are inconsistent with the best interests of the shipping and traveling public. Failing or being arbitrarily disregarded, he is burdened with an annual deluge of useless and costly legal "musts" and "must nots" which of necessity make every employe in the operating department an almost daily violator of his country's laws. To observe strictly the hundreds of railway laws and orders in effect today, he must be nine tenths technical lawyer and one tenth practical railroader.

Observe the following few, very few, examples of additional regulative absurdities, the conflicting ideas of which in the different States should be reconciled: In one State we are told by the Board of Health that linen covers should be applied to the head-rest of coach seats; in the next State we are told that they are unsanitary. One State wants dust boards in the coach windows; another does not care for dust boards but wants fly screens. One Commission wants the flagging done in a certain way; the next State does not agree and demands that a different method be employed. One State requires that the locomotive whistle be continuously blown while passing through towns and villages; another makes it a criminal offense to blow the whistle under such conditions. Water cannot be put into the cars without it being certified to. The source of ice, stored the preceding winter must be traced and a certificate provided showing its purity. One State fines us if our passenger trains are late, another penalizes us by drastic court decisions if we make the schedule and anyone is injured. One community wants coal consumed on the locomotives to help its mining interests; at the other end of the division they demand electrification to help those who furnish electricity and electrical supplies. Orders are obtained from the Commission in one State to erect union depots at all junction points, notwithstanding the fact that the tracks of the respective railroads are far apart. In no State the railroads are compelled to fence their right of way. Public sentiment won't permit the gates to be kept closed, and in other States the right of way is used legally as a pasture. Railroads are required to spend millions for track elevations, and then are refused aid to keep trespassers off such elevations.

Many Federal laws are now pending which are absurd, inconsistent, unreasonable and impossible of compliance, such as House Roll 28230, requiring all locomotives to be equipped with the La Croix Control System. Another by Congressman Richardson to compel the use of the Cain-La Barre system; one by Dent requiring the railroads to adopt within five years some form of safety device to prevent derailments, he don't know what—it is as yet to be invented—a genius must be created like Edison and by the railroads; one by Brown to require the use of the Jennings' combination tie. There are numerous headlight bills requiring the use of electricity, acetylene gas, some with flash lights, others with vertical rays; one to regulate speed, another to require all cars to be made of steel; one to require the Government to take over all the railroads so there will be no more accidents; one to investigate methods in vogue in repair shops in the interest of so-called efficiency experts, and one by Congressman Lafferty, House Roll 27724, requiring common carriers to furnish names of all witnesses to plaintiff or his attorney in case of accident and personal injury; one to prevent the transportation of white slaves; others, to fine the railroads for transporting whiskey, beer or adulterated articles of commerce, impure seeds, women or butter; one by Kenyon of Iowa inflicting a fine against the railroads of ten thousand dollars with imprisonment for transporting the product of any mill or factory where females have been employed more than eight hours per day or more than forty-eight hours per week; an Anti-Option bill to prevent a railroad from getting right of way at the market price; one by Culty to reduce the hours of labor on railroads; one by

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Congressman Berger, the United States to acquire the railroads to prevent strikes of firemen and others.

Numerous compensation and workingmen's liability bills, several to prevent protection of railroad property in case of strikes by invoking Federal aid—the Crawford bill became a law March 4th, 1913, regulating injunctions in the interest of rioters. There were 855 bills before the last Congress designed to make railroad operation more costly without compensatory benefits to shippers.

Nearly all of this uplift legislation is unnecessary, antagonistic and expensive. It is born of a desire to please the rabble or to pay political debts.

And now, our would-be regulators sit back appalled at the loss of life and deficiency of service as compared with the foreign lines and deplore that more has not been done in this country to promote real safety and service. Who is responsible?

Naturally, following such publicity and continued exciting and inflaming of the public mind against the railroads, come extremely pernicious court decisions which we cannot avoid and meet service demands; consequently the railroads are compelled to bear the burden of heavy and unjust judgments and charge it into the expense of the service, and you business men must pay the bills.

We have been told by the Supreme Court in one State that a railroad has no right to run its trains faster than six miles per hour within limits of any city, town or village, nor faster between towns than will enable the train to be stopped within the distance a headlight may reveal a person walking or standing on the track. That means, under the absence of trespass laws, that every few minutes, if he comply with the law, an engineer must slack his passenger train to five or six miles per hour, because ahead of him walking on or to one side of the track is a person, who, through suicidal intent or carelessness, might step on the track—and to carry out the intent of the ruling so as to surely exempt the company from any liability for personal injury he must bring his train to a stop upon reaching the person, as he might step on the track just as the engine comes on him. In other words, it means that the engineer must virtually ask this trespasser if he may run his train by him. Failing to observe such speed restrictions the railroad is held prima facie responsible in personal injury suits, and judgments are rendered in trespass or other cases on this basis alone—forty thousand dollars for the death of a minor trespasser recently.

To provide you business men with the prompt and efficient service which you demand and ought to have, operating men must take chances under these laws and decisions, and must rightfully look to you for reciprocity and protection. If we were to literally observe them as being the representative will and judgment of the public, it would absurdly lengthen freight and passenger schedules to exasperation and ruin.

High speed does not save the railroad money; on the contrary, if the greatest efficiency of the locomotive could always be obtained, our earnings would increase vastly, the exemption from accident would be greatly increased.

If all the foregoing costly interferences and progress-retarding rules, laws, opinions, orders, ordinances, awards, judgments and what-nots are not the real will of the people, then public spirited citizens, as occurred recently among the business men and farmers of Texas, who are interested in real genuine improvement in our transportation facilities, who are not restricted in their actions by temporary self-interest, should assume a demonstrative and convincing leadership in arousing the public to manifest its disapproval of the multitude of disconcerting mandates turned out by their law making and governing representatives.

It is to be noted that where the operating manager has been enabled, through the business men, to present his need of freedom from regulation in his work of running trains direct to the people, the legislatures have usually been reversed. It is essential that the people shall be afforded the right sort of argument from practical men, upon which they can base their conclusions, and unless the business men will come forward and analyze in a thoroughly practical manner the import and effect of present and impending laws affecting railroads, the people will be left to base their conclusions on the biased or un-American utterances of the political demagogue, or those ignorant of important matters,—their cause and effect.

The people of the United States, by reason of the quasi-public nature of railroad business, are distinctly partners in the work of perfecting the railroads of this country to a highest possible condition from the standpoint of safety, comfort and service. Thus being partners they have elected railway commissioners to conserve their interest in the development work. Consequently, such commissioners have become railway regulators and as such must assume even greater responsibility than railway officials in the matter of bringing about a proper condition, for they have largely taken away the means although now expecting the result.

It is believed that if the present situation is thoroughly and conscientiously analyzed, it will be admitted that in the majority of cases, if the technical questions had been left more in the hands of those who are skilled by long years of experience and training, the public would to-day have a much higher standard of railways in point of safety, service and physical condition, with an era about to dawn when rates could be legitimately reduced much below any plane that is not now confiscatory, because they would have had the funds to use in directions and in the sequence which they best know would enable them to to-day operate more cheaply and satisfactorily than it is possible under the curtailed improvements which it has been possible to make with the revenues permitted them. This has been conclusively demonstrated in that those sections of the United States where railway managers have been least interfered with in working out the problems of superlative railways and economies, they to-day have the most satisfied public.

It is not alleged that all of the regulation imposed on the railroads is without a conscientious belief that the particular effect produced is of greatest benefit to the public, but there is much of it—and much of the public antagonism engendered—for political preferment rather than through any sense of sincerity.

We must admit that some of the actions, but partially and briefly told in the foregoing, taken to regulate railroads are inconsistent and productive in the long run of an effect opposite to that desired, because our method of appointing railway commissioners is in many States elective, not economic, and frequently an entire commission

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may be composed of men, who up to the day of their taking office, have never had any experience in the operating or executive end of the railway or any other business—they may be men who have devoted their entire lives to a professional calling, such as doctors, lawyers, teachers and others with less qualifications who have obtained their position entirely through political influence.

There is no open sesame to the problem of railway operation and management, so that any one, regardless of previous experience or particular fitness, can assume authority and within a day or two issue orders intended to improve methods which are the outgrowth of many years of careful and painstaking analysis to determine what is best. On the contrary there is no other business which is so complicated and requires such a variety of highly skilled talent of long experience. Yet behold our "hit or miss" plan of railway regulation—rule in effect anything that the moment suggests, without regard to the whole. First take away from the railways through rate reductions millions of dollars, which they are trying to save up for thousands of freight cars, and then order them to furnish the cars anyway.

Is there not in the field of railroading to-day an actuality in regulation, which, although comparatively as sensible, would be pronounced ridiculous and highly impossible in other fields? For instance, the medicos have in their hands the health of ninety-five millions of people. In constituting our commissions to regulate the medical profession, do we put railroad men on them who, until the day of their appointment, know nothing about medicine? Is it not as consistent for a doctor to prescribe just what shall be done on each mile of railroad as it would be for a railroad man to prescribe how many grains of calomel should be administered to every patient?

There is a true saying that "Seamen are made on the sea." Those who must assume the responsibility for movement of trains must make the rules and enforce them. The greatest difficulty is well known to be in enforcement. It is the disposition of mankind to resist discipline. There are two ways in which it may be obtained—by placing the forces on honor and by punishment. The former undoubtedly governs the largest number of railway employes. There are a few who are so constituted that honor means little; who chafe at discipline. It is this class who make the trouble on the railways, as they do in the army and navy, and in every walk of life. They cannot be eliminated from the service until they have committed some act which proves their incompetence.

If the public will accept the verdict of the manager in case of accidents and withhold its maudlin sympathy from the criminally negligent, they can be assured that the organizations will see that injustice is not done their members. If they will support the managers, as they do the civil authorities, there will be fewer accidents due to the human equation which now composes eighty per cent of the whole.

When findings in accidents are put out to the public containing insinuations of "gross negligence of officials," it is a serious personal reflection on their integrity, ability and sense of moral obligation. Before such drastic accusations are brought against any one, it should be first determined what justly constitutes dereliction of official duty. Is it gross negligence to have failed to do that which it is utterly impossible to do? Six years ago the first steel passenger car was built. That was the greatest humanitarian step in the preservation of lives, even more than the perfecting of the automatic block signal. Is it dereliction if a single wooden car is to-day used in trains?

Automatic train control devices are now in process of evolution, and a special committee of the Interstate Commerce Commission has been giving their design and dependable efficiency close consideration. The president of the New York, New Haven and Hartford Railroad, with other officials now on trial for manslaughter, has offered twenty thousand dollars to the inventive genius who will furnish such a device that is practicable and offers to install it on his railroad, if approved by the Interstate Commerce Commission. If that body should to-day stamp their approval on any such device, would it be dereliction of managerial duty should an accident occur next week, which might have been prevented if such a device were in use? Should not the judgment of an official's character be made on the basis of that which is possible and the exigencies of the process of evolution?

The trouble generally with our present railroad regulation is that it is extremely "wishy washy," and does not pursue or even recognize any comprehensive or matched up scheme; it consequently often becomes dangerous and more often ridiculous. No consideration whatsoever is given to how seriously a law or order may clash with the general plan upon which railroad operation must be matched up, and if we cannot show that an order contains specific objection within itself set apart from the general plan, it is thrown at us to obey.

Laws are ordinarily placed on our statute books to correct purposeful wrong doing—but in the railway field now laws are being passed by the scores, not to correct purposeful wrong doing, but to exact impossible perfection. What is the effect of passing a law which the framers, as well as the public, know is impossible of compliance? It throws that law, and ultimately the entire jurisprudence, into contempt, and we become a disobedient Nation. This is not mere soliloquizing—the effect is apparent on every hand.

I cannot in fairness continue indicting railway regulators without strongly emphasizing the fact that some of our commissioners are able and broad minded men, and from their energies we suffer but little disorganization and frequently much support, and it is significant that where we find such a commission we find men whose appointments are economic and who have long held their office, in consequence of which they have been able to gain the requisite knowledge of the affairs which they are to administer. Gentlemen, it is gratifying for me to say, and perhaps for you to know, that you have in the State of Illinois the sanest and most all around conscientious railway commission it has been my pleasure or pain to meet.

You have, perhaps, had your mind glutted with an avalanche of yellow journalism in newspapers and muck raking magazines, harping on the number of fatalities due to the inefficiency or neglect of the American railway operating man. If you will examine with me into our records, I think you will find that we are not so bad after all; that we are steadily diminishing the number, and that we are far less censurable than our public officials in their dereliction along certain lines of life

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protection—namely, trespassing, murder and disease.

The loudest condemnation and allegations of dereliction of duty on part of railway managers arise out of the number of passengers killed in accidents to passenger trains. During the fiscal year ended June 30th, 1912, such deaths amounted to forty-nine in collisions and sixty-five in derailments, a total of 114. Let us see how the alleged inefficiency of railway managers, which caused these 114 deaths, compares with deaths growing out of the inefficiency or temporizing of public officials.

Comparing the year 1912 with 1888, we find an INCREASE of 47 per cent in the death rate per million of population, due to trespassing; an INCREASE of 175 per cent in the death rate due to murder and a 69 per cent DECREASE in death rate due to passengers killed in accidents to steam passenger trains.

Is not that conclusive—47 per cent increase in the number of trespassers killed since 1888, and yet practically nothing has been done by public representatives to avoid this loss of life. Is it not the moral duty of the public to protect the lives of citizens who may be walking just as much as those riding on trains?

The ratio of murder depends on the education and control of the human equation just as the diminution in fatal train accidents depends largely upon the control and education of railway employes. The operating official's education and control of his men has brought about a 69 per cent decrease in the ratio of deaths to persons entrusted to his care—quite in contrast to the inefficiency and neglect of public officials displayed in the 175 per cent increase in the ratio of murder.

During the fiscal year 1912 there were an average of three tenths of one passenger killed in passenger train accidents each day as against 14.8 persons killed each day while trespassing—practically fifty times as many trespassers killed each day as passengers. Yet there are only nine States in the entire Union that have even fairly satisfactorily trespass laws, and they are all indifferently administered.

The self appointed uplifters harp on the criminal negligence of railway officials in connection with the death of these 114 passengers. If it is true that it is criminal negligence (which, however, you know is not true) then there is no expression which can adequately enlarge on the stigma attaching to the failure of public officials to prevent the death of fifty times as many individuals trespassing and eighty-five times as many murdered. Should not public censure be turned entirely in the latter directions and let the railway officials work out their own problems, which they have shown themselves able to do?

There is a much needed awakening among those who administer the laws and in what Governor Brown, of Georgia, said recently, concluding a speech at Atlanta, we see developing a strong tendency to invoke the protection of the law against injustice to the railroads:

"Now, in all that I have said I have passed no judgment on the merits of the differences between the railroads and the employes. I say not which is wrong or which, if either, is right. Their differences do not constitute the real issue which has been the logical result of the recent happenings. That issue is found in the question 'Shall the laws of Georgia be equally enforced, or shall one class of the people be permitted to ignore the courts and inflict, it may be, irreparable damages upon multitudes of others in its quarrel with its adversary while all other citizens must submit their contentions to the determinations of the courts of the State?' Or in other words, 'Are the laws of Georgia subordinate to combinations working for their selfish interests in such manner as inflicts injury on the general public?' "

That any business man who takes an active part in restoring the railroads to their proper place in the regulative field may not fear that he has no precedent of a totally unbiased citizen, I quote what Charles A. Prouty, chairman of the Interstate Commerce Commission, said on March 28th in speaking of the "Future of Railway Regulation":

"Every intelligent man knows and must feel that it would be a rank injustice to require railway investments to earn less than other investments of the same grade. Every intelligent man must know that to force down railway charges below a fairly remunerative point would so impair the credit of our railroads as to prevent them from properly discharging their functions as public servants. When honesty and public interests combine to secure to our railways rates which are fairly compensatory I cannot believe that this privilege will ever be denied. If the time does come when railway property is sacrificed to popular clamor, when the public demands its confiscation and the regulating tribunal concedes that demand, no property will be of much value. The day will have to come when the obligations of private rights is no longer observed."

The continued withholding of a fair regard for the honest, earnest effort and ability of the railway operator is more and more tightly binding his hands in their consistent effort to give what you business men and the public you serve want. You are practical and we railway operators are practical as we came up through the same toilsome path that you did. Not having been unjustly vilified, as yet, by the demagogue as we have, you are still able to wield a strong influence over the public mind in turning it back to practical channels, away from the will-o'-the-wisp philosophy and activities of the railroad baiter.

It may be said of some State Legislatures, "It is excellent to have a giant's strength; but it is tyrannous and ruinous to use it like a giant."

ALL WE ASK IS MEASURE FOR MEASURE.

Smoke Evil Report.—What is expected to be the most comprehensive report ever prepared by experts in this country on the railroad smoke nuisance and means for abatement will be presented at the annual meeting of the American Railway Master Mechanics' Association in Atlantic City, June 11th to 13th next.

An extended series of tests have been made of various grades of coal used for locomotive fuel and of a number of smoke preventing devices. All the data will be incorporated in the report being prepared by a committee.

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The Railroad Situation of To-day

By BENJAMIN F. BUSH,
PRESIDENT OF THE MISSOURI PACIFIC RAILWAY.

A CAREFUL and impartial analysis of the railroad situation as it exists to-day, irresistibly forces the conclusion that there is no subject before the people, no policy engaging the attention of the Government, that in its future economic aspect foreshadows more dangers, both to the commerce of this country and to our institutions, than does that of railroad transportation; therefore that it be solved rightly it should receive the most scrupulous consideration.

The wonderful commercial progress of the United States has been made possible only by the railroads. Since 1870, when the impetus given railroad construction began, the wealth of this country has increased from thirty billions of dollars to the enormous sum of 140 billions. Its foreign commerce, in the main largely dependent upon the railroads, from eight hundred millions of dollars to four thousand millions. The internal commerce of the railroads to-day has reached the stupendous figures of over two hundred and ninety-three billions of units of service—being the tons of freight hauled one mile and the passengers carried one mile.

The volume of this railroad commerce has nearly doubled in twelve years, and taking cognizance of the alert and progressive spirit of our people and our still latent and undeveloped resources—in farm, mine, forest and factory, an alluring promise is foreshadowed for a continued increase.

The fulfilment of this promise rests entirely upon the ability of the railroads to improve their existing plants to a higher state of efficiency, to extend their lines into the undeveloped regions and thereby provide the necessary facilities for the prompt movement and distribution of the products arising from the awakened activity. The commercial supremacy of the world is the heritage of our Nation if the means at our command are wisely applied.

As to how the railroads can secure the money necessary to make the improvements and extensions to efficiently provide for the carriage of the existing and increasing traffic, so that all lines of industry may develop and operate to full advantage and our vast tide of commerce still further expand and flow unrestricted to its final haven, is "The Railroad Problem."

As the conditions are to-day, by reason of not having the means at their command, the railroads, with few if any exceptions, cannot give proper movement to the large volume of existing traffic. This was likewise true in 1906, 1907, 1910 and 1912. The transportation facilities are not keeping pace with the increasing traffic requirements.

At the period of their inception, railroads were crudely constructed, but they supplied the needs of the time in moving the sparse traffic then offered for shipment. They were built on the lines of least resistance to meet the varying characteristics of the contour and topography of the country traversed. Later, with the growth of traffic and more urgent requirements, radical improvements had to be made to meet the changed conditions. Practically the lines had to be almost rebuilt—in reducing grades, eliminating curves, replacing wooden with more substantial steel and concrete bridges, widening roadbed and embankments, ballasting track, deepening and widening ditches, constructing cross-drains, building viaducts over road crossings, building sidings, passing and double tracks, providing heavier rails and ties, larger engines and cars, spacious terminals in large cities, more commodious station buildings, engine houses, shops and many other appurtenances. As the means have permitted, this work of rebuilding and enlarging and improving the roadbed and equipment has been prosecuted, so that a higher standard of service and efficiency might be forthcoming. Billions of dollars have been already expended in this work, but much yet remains to be done before the roads reach that stage of completion that the constantly increasing traffic can be satisfactorily handled. This will require more billions of dollars. The money cannot be supplied from earnings. On account of inadequate compensation for service rendered the earnings in many cases are scarcely sufficient to maintain the properties in a solvent condition.

BENJAMIN F. BUSH.

How then can this necessary capital be obtained? A railroad to obtain money for extensions into new fields or for the improvement of existing lines must, like a merchant, have an established credit. It must be able to show by past or current operations that it will be able to meet the new interest obligations it assumes and have a surplus over and above all its requirements. Not many railroads are able to do this under the existing operating conditions of high wages paid

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for labor, increased cost of materials, the higher standard of service demanded by the people, and governmental compulsory expense and regulation of charges for transportation.

Legislation of the most onerous character has in recent years been enacted by federal and state authority, entailing numerous expenditures without any compensatory provision, many of the acts being entirely without beneficial results to the public and only an economic waste. Three or four bills now being urged upon Congress are estimated to involve an expenditure by the railroads within the next four years of nearly a billion and a half dollars.

These many expenses over which the railroad manager has no power of control have steadily increased the cost of operation, and as the unit of compensation for transportation service is regulated by federal and state authority and is more often reduced than advanced, it follows that the unit of profit is steadily decreasing. If these two opposing units of conditions, cost and compensation, are allowed to continue in their course, it means they will meet in time and all profit will be expunged.

It may be thought, however, that the revenue derived from the increased business will more than offset the increased expense. Such is the view of the ordinary layman who has given the matter only cursory study. If the roads were not working to their full capacity—that is, if they had unused engines, cars, tracks and terminal facilities, they could to some degree for a time offset the increased expenses by additional earnings, but when as in 1906, 1907, 1910 and 1912 they were burdened with business beyond their capacity, the excess entails an expense much greater than the average cost.

The gross earnings of the railroads increased largely during the last half of 1907, but notwithstanding this, the net earnings decreased over twenty-two million dollars. For the last six months of 1910 the gross earnings increased over fifty-five million, while the expenses increased over eighty-four million. The volume of traffic moved in those years was very large and for many months was in excess of the capacity of the carriers.

The Interstate Commerce Commission in 1907 declared that the inadequacy of transportation facilities was alarming, yet when the railroads sought to advance their rates in 1910 to enable them to make better provision for the public demands and establish a higher financial credit, the Commission would not sanction the advance. The earnings for the roads for the two following years, 1911 and 1912, increased $11,054,000, but the operation expenses and taxes were swelled $98,544,000, leaving a less net revenue for 1912 than for 1910 by $87,490,000. This loss was equivalent to the impairment of their ability to raise over two billion one hundred and eighty-seven million dollars at 4 per cent. It is thus that the net revenues of the railroads are depleted and their inability to borrow money is further emphasized. If the railroads could retrieve such yearly net losses, they would be able to strengthen their credit in the financial marts and raise the necessary funds to meet the exigent demands of the business public.

It is a mistaken conception though one generally prevalent, that the railroads are overcapitalized and seek to obtain exorbitant rates from the public to pay interest on the excessive capital. The fact is that the physical properties of the railroads could not be duplicated to-day for anything like the present capitalization. The money of the owners which has not been capitalized, that has been expended on the roads from year to year since their pioneer days, in betterments and improvements, roadbed, equipment and their accessories, has long since absorbed any water there may have been in the securities.

Such high authority as the Interstate Commerce Commission declared some time ago that the value of the physical properties of the American railroads was more than that represented by their stock and bonds. This capitalization is less than one fourth that of the English railways and less than one half that of the roads of Europe's Continental countries; yet high as this capitalization of foreign railroads is, they are permitted to charge such rates as yield reasonable net returns.

The average rate received by the United States railroads for hauling a ton of freight one mile is three quarters of one cent, while the rate received in England for a like service is over two and a quarter cents, or three times as much. The rates of other European countries are also much higher than ours. As has been well said by Mr. Hill, "The American railway pays the highest wages in the world out of the lowest rates in the world, after having set down to capital account the lowest capitalization per mile of any of the great countries of the world." He might have added, they also give the best service in the world.

I believe it can be truthfully said that the causes of complaint in the past against the railroads have been entirely eliminated. The published tariff of charges accessible to all governs to-day, without discrimination or favoritism to any shipper. Complaints may arise and do arise as to rates on specified commodities between given markets, on account of their relation to the rates on like correlated commodities to and from other markets. These complaints grow out of the rivalry between communities and are the main grievances of shippers now brought before the Commission.

Shippers naturally endeavor to get the lowest rates possible, and from the standpoint of their individual interests they believe that unjust inequalities exist in rates, although such inequalities may be the result of inexorable economic laws beyond the carrier's power to control. In the adjustment of these differences between markets or rival communities, the decision of the Commission is almost invariably in the direction of reducing the higher rates to the lower level. In this way there is a constant nibbling at the rate fabric, which ultimately will prove as injurious as a wholesale reduction.

It is axiomatic that mutuality of interest exists between the railroads and the shipper; that one cannot prosper unless the other does and that injury to one will later bring injury to the other. If the shipper is charged unreasonable rates or is afforded poor service for the transportation of his wares, he suffers in his busienss and this in time reacts upon the carrier. On the other hand, if the carrier receives insufficient compensation for its service by reason of inconsiderate legislation, or by unwise direction of regulative authority undue burdens are imposed which increases its expense, then it may for lack of means be unable to maintain its former standard of service and thus the shipper and the carrier are both injured.

I recognize that the railroads are in duty bound

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to serve the public in the best possible manner and that the public, through the state, has the authority to regulate their operations, but when that authority is exercised with reference to the most minute and varied details, burdening the carrier with an unnecessary expense, which it cannot afford, then it would seem only just that the public, through the state, should allow it the necessary protection in the way of maintaining compensatory rates. This is on the principle that the right to regulate or control carries with it the obligation of reasonable protection. Authority carries with it responsibility and control imposes the duty of protection. I believe that the same principle of justice should be administered to an association of individuals known as a corporation as is administered to the individuals personally in other capacities.

Considering what the railroads have done through the investment of private capital—in upbuilding and developing the country, improving the conditions of living, uplifting the people and adding to all the comforts and conveniences of life, they certainly are entitled to that necessary protection which will enable them to continue in their vocation and elevate to a still higher plane the social, commercial, industrial and agricultural conditions of our people.

An eminent public official, an authority upon this subject, has said: "No just legislation upon this subject will proceed upon the theory that the public alone is in need of protection and that the railroads can take care of themselves. I have no sympathy with such an unfair and illogical contention."

The United States census returns show that from 1900 to 1910 the capital value of agriculture increased from nearly twenty and a half billions to forty-one billion dollars, or 100 per cent, and the capital value of manufactures increased from nine billion dollars to nearly eighteen and one half billion or over 105 per cent, while the capital of the railways increased from ten and a quarter billion dollars to less than fourteen and one half billion, or only 40 per cent.

Here we have an increase in the capital of thirty billion dollars in those two important industries of agriculture and manufacture which are almost entirely dependent upon the transportation lines for their successful operation, whereas the caiptal of the transportation lines with their many appurtenances increased only to the value of four and a quarter billion dollars.

And again, we find that the value of the products of manufactures increased from eleven and one half billion dollars to over twenty and one half billion, or 81 per cent. As the railroads get a double haul on a large portion of manufactures—the raw material in to the factory and the finished product out, it may be judged how essential it is that they keep abreast of the times in road and equipment to properly take care of the constantly increasing tonnage implied by these enormous values. The largely increased volume of agricultural products, which last year exceeded nine billions of dollars in value, must meet with more prompt consideration on the part of the carrier, for through the economic conditions governing, the greater portion of it is rushed to market within a limited time.

The census further shows that notwithstanding the large increase in the capital of manufactures of 105 per cent, the net return to the owners on the total of twenty and one half billions was over 12 per cent. Yet on the railway capital there was nothing paid on three and one half billions, and less than 5 per cent on seven and one half billions. The services of the railroads make secure the most liberal returns on the enormous capital of fifty-nine and one half billion dollars invested in these two industries, and therefore the manufacturers and farmers should willingly aid in an effort to get the transportation rates advanced. It is of paramount importance to their own continued welfare that they exert themselves in that direction.

I have already alluded to the immense volume of traffic conducted by the railroads and to the fact that it has increased double-fold in twelve years. Will it continue to increase in the same ratio in the coming years?

The marvelous resources and latent strength of this country are in many respects scarcely trenched upon. Of the total land area of the country 46 per cent is in farms, but of this land in farms only 54 per cent is improved. Only 25 per cent of our great domain is producing anything of value. My friend, ex-Governor Hadley, of Missouri, when in office, stated in a public address that the development of Missouri's natural resources had scarcely begun; that there were three counties in the state wihch had no railroads and seven counties with less than twenty-five miles; and that of the forty-four million acres of land in the state more than one half had never been touched with a plow. A like statement is applicable to many of our Western and Southern states. The opening up and cultivation of these undeveloped lands by the building of railroads would give a further impetus to general trade and industry.

Then again, our farmers are now awakened to the benefits to be derived from the application of scientific methods in agriculture and more intensive yields will be the result. A more careful culture of our wheat lands will easily double the yield and still be less than that of European countries, whose land has been under cultivation for more than two thousand years. A like increase can be effected in the other cereals and products of the soil. Our project for the reclamation of the swamp and arid lands goes on apace.

There are vast mining lands with their hidden treasures yet awaiting development. The completion of the Panama Canal will open to us more directly the trade of the Orient and Western South American countries with their hundreds of millions of beings whose wants may be supplied with our merchantable wares. The value of our exports of manufactures is now over one billion dollars annually, and at the present rate of increase it doubles every three or four years. Our foreign trade in other commodities is taking on a greater momentum.

In all these we have a magnificent vista of possibilities which portends the continual upward trend of our trade and commerce with its concomitant of future steady employment for our people—the desideratum of all governments. The illimitable prospects betoken its continuance if ample provision is made for transportation.

Now, with the present traffic of the railroads reaching the stupendous figures of over 293 billions of units of service, what will the future increase mean if kept up in the ratio of the past?

You all know something of the capacity of the New York Central Railroad within your own

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great state, and the magnitude of its operations and transportation facilities. Four per cent of the volume of traffic now annually moved by our railways would at the present day tax the full capacity of that road, working day and night for one year. As the railroads operated to their full capacity in years of active business, like last year and other past years, an idea may be formed from this illustration of the magnitude of the work that will have to be done in fitting response to the demands of commerce. The commerce is increasing on an average of 8 per cent and more per year, and notwithstanding one half of this yearly increase would tax the capacity of one of the first railroads in the land, no provision is being made and no provision can be made under the rates now received for transportation service for the proper and safe conduct of this prospective traffic.

Can the railroads meet this serious situation with which they are confronted? Yes, if allowed to charge a fair compensation for their services. The railroads now receive on an average per mile seven and a half mills for hauling a ton of freight and less than two cents for carrying a passenger. If this average compensation could be increased even one mill a mile, or the equivalent of the price of a postage stamp for twenty miles' service, it would extricate them from all further trouble and anxiety. It is scarcely conceivable that such a slight advance would injuriously affect any trade, industry or person, yet it would be the means of conferring untold benefits upon the entire business of the country.

The honorable Martin A. Knapp, late chairman of the Interstate Commerce Commission, who had twenty years' experience on that board, after a careful study of this question from all viewpoints, expressed his deliberate judgment as follows:

"Without regard to the personnel of railroad officials, without regard primarily to the interest of stockholders, but in the interest of public welfare and National prosperity, we must permit railroad earnings to be adequate for railway improvement at advantage and profit.

"The prosperity of the counrty is measured and will be measured by the ability of its railways and waterways to transport its increasing commerce. With a country of such vast extent and limitless resources, with all the means of production developed to a wonderful state of efficiency, the continued advancement of this great people depends primarily upon such an increase of transportation facilities as will provide prompt and safe movement everywhere from producer to consumer; and *that* we shall not secure unless the men who are relied upon to manage those great highways of commerce have fitting opportunity and the capital which is required for their needful expansion is permitted to realize fairly liberal returns."

If the railroads are not allowed to charge a compensation for their services that will enable them to make a fair return on the investment with a reasonable surplus for betterments, improvements and the establishment of their credit, the task on their part of meeting the situation will be hopeless. In equity and justice they are entitled to this, and I believe if the question were understood in its different phases the good sense and fairness of the American people would be asserted in support of the railroads.

Not only have the railroads' expenses steadily increased of late years, but the purchasing power of the compensation received for their service has decreased. In other words, while the value of a given quantity of farm products will purchase 69 per cent more ton miles of transportation than in 1900, the purchasing power of the compensation received by the railroads for the transportation one mile of a given number of tons of freight in 1910 was 13 per cent less than in 1900.

With these adverse conditions confronting the railroads, it is absolutely necessary in order that they perform their functions to the public that they be allowed to advance at an early date their service charges. This is a matter of more vital concern to the welfare of the entire people than it is to the individual owners of the railroads.

If the railroads deteriorate in the service rendered, as they undoubtedly must if the conditions are not changed, it unmistakably means that commerce will be retarded; that industry will languish; that the many fruits of agriculture will wane; that the proud eminence we have attained in our many varied pursuits will crumble, and the unrest, discontent and dissatisfaction of an unemployed people may lead to the establishment of a new order of things with respect to the ownership and operation of the railroads of the country, with the attendant dangers to the perpetuity of our republican institutions. So the conclusion is irresistibly forced upon us that this railroad question is a Government problem, and one of very grave and serious concern, which should be satisfactorily settled, and the ominous dangers threatened averted thereby.

The President of the United States, before his inauguration into office, asserted that

"The measure of service rendered by business to the people will be the measure by which the merit of business shall be judged."

The railroads can accept this declaration and be satisfied to stand or fall by its concrete application.

I believe it will always be found that in any estimate made of the dignity and strength of our Nation, of the enlightenment and social comforts of our people, of the wealth and commercial greatness of our country, the significance of the railroads must stand forth—A MARKED CONSPICUOUS AND IMPORTANT FEATURE.

Action by New York Organization on Commerce Court.—The Transportation Committee of the New York Chamber of Commerce, has made a statement to the effect that the Commerce Court is a necessary part of our judicial system, not only for the reason that it expedites contested cases, but as best serving the interests of the shipping public in the securing of a uniformity of decisions applicable throughout the country in lieu of the conflicting decisions and delays experienced under former jurisdiction in the various district courts. It was, therefore:

Resolved, That the Transportation Committee recommend to the Executive Committee of The Merchants' Association of New York, that Bill H. R. 1921, proposing to abolish the Commerce Court, be opposed: and, further,

Resolved, That suitable representations be made to the President of the United States favorable to the continuation of the Commerce Court as in the interest of the great shipping public.

This recommendation was approved by the Board of Directors.

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Are the Railways Fairly Treated?

By WILLIAM Z. RIPLEY,
PROFESSOR OF ECONOMICS, HARVARD UNIVERSITY.

THE most striking feature of the railroad problem in 1913 is the contrast with conditions ten years earlier. Instead of unexampled prosperity, a period of great financial depression in transportation business has supervened. In place of practical domination in the economic life of the country, the carriers now seem to be more or less at the mercy of circumstances. Organized labor under threat of general strikes has forced substantial concessions both in wages and conditions. The carriers have acquiesced manfully in the mandate of the people that they shall be subject to public control. But they find themselves now, by the pressure of increasing costs of operation and of even greater demands from the public for more and better service, practically compelled to throw themselves upon the mercy of the Interstate Commerce Commission for relief. This relief is demanded, not alone in the interest of investors, but in order that much-needed improvements and extensions commensurate with the development of the country may be made. It is a self-evident proposition that unless the railroads are prosperous and protected in the exercise of their property rights, a healthy growth of transportation facilities cannot be had. Adequate service and the convenience of the public require that the present plight of the railways should receive the most earnest consideration.

Railway net income which culminated in 1910, has now declined from that level by about one eighth, despite a considerable increase in gross earnings. The latest evidence shows a halting and uncertain movement. This condition of affairs makes it practically impossible for the carriers to raise funds by the sale, even of bonds, except at high rates of interest. Further continuation of hand-to-mouth financing by issuance of short-term notes is fraught with danger. A menace to continued prosperity also is the successful pressure of the railroad brotherhoods for substantial increases of wages.

Under ordinary circumstances relief might be had from three directions. greater economy and efficiency; a substantial growth of traffic; or an increase of rates.

Economy and greater efficiency of operations, as a remedy for deficiency of revenue, played a large part in the rate advance cases of 1910. But it is clear that railroads, as a field for the introduction of scientific management methods, are considerably handicapped. Rigid rules of the railway brotherhoods are difficult to overcome. The wide geographical extension of operations renders detailed superintendence impossible. And the steadily increasing demands of the public for more and better service, regardless of cost, hinder the introduction of many plans for more scientific operation. On the whole, American railroads are operated at the high level of efficiency. Certain economies ought, nevertheless, to be affected. Among these should be a careful revision of purchasing department methods. Laxity and private profit ought to be rigorously excluded. Every advantage should be taken of the open market regardless of financial affiliation with the large industrial combinations. This point was especially referred to in the Eastern rate advance cases of 1910. Contracts with private car and express companies ought to be reduced to the lowest possible figures, so that all suspicion of favoritism should likewise be eliminated. With houses thus set in order the roads should be able to present a strong case for efficiency. They need fear comparison with no other country in the world.

Increase in tonnage, as a remedy for the existing distress, promises less relief than might have been expected five years ago. This follows naturally from the rise of operating costs already mentioned. But it is also established by the clear demonstration that after a certain point of traffic congestion has been reached, immediate, general and extraordinary outlay of capital is necessary in order to handle further increments of tonnage. Unless earnings, therefore, are sufficiently ample to permit of large annual improvements out of income, the demand for new capital seems bound to outrun the earning power.

It is apparent from the foregoing statements that relief can be afforded for the present crisis in a large way only by the sanction by the Government under the new powers of control exercised since 1906-10, of a general increase of rates chargeable for service. Experience of the last ten years emphasizes the point that such relief can scarcely be afforded piecemeal. The growing unity of interest of all carriers arises not only out of the close inter-relation of rates all over the country under the stress of commercial competition but also because of the practical standardization of the largest item in railway expenses, namely, the outgo for wages under pressure from the railroad brotherhoods. It would appear therefore that in place of attempts, road by road, to raise rates on individual commodities, what is needed is the formulation of a carefully prepared plan of more general revision.

A substantial increase of revenue by means of higher freight rates seems, then, inevitable. But the failure to secure the approval of the Interstate Commerce Commission in 1910, instead of being discouraging, should point out the way for the future. The Commission at that time promised to consider similar propositions in future without prejudice. They have, as a matter of fact, since 1910 permitted more raises of rates than they have denied, as shown by the following statement.

Proposed advances approved	66
Proposed advances approved in part	18
Proposed advances disapproved	60
Proposed advances voluntarily withdrawn	18

And then, in addition to these cases of suspension, thousands of increases have been allowed to take place without interference. For New England, thus far, not a single proposed increase has been permanently prevented, and an aggregate increase of charges of over $3,000,000 has actually occurred since 1910. The policy of the carriers should be to cease crying "Wolf," there-

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by arousing distrust among investors; and to go confidently forward and prepare a strong and logically defensible schedule of advances to present to the proper authorities.

In the upward revision of rates the representatives of shippers should be consulted, as was recently done, in the increase of transcontinental rates, just sanctioned by the Commission. Many favors to the trusts which now exist through unduly low rates on such commodities as sugar, copper, cattle and beef and steel products should first of all be corrected. Despite the great rise in prices, rates on many of these trust-made commodities are no higher than they were in 1900. All suspicion that interlocking directorates have perpetuated these unreasonably low freight rates should be met. The relation between rates to large cities and industrial centres, as compared with local charges, needs attention, also. If the railways come with clean hands, well-ordered houses and a proper scheme of increases, the Interstate Commerce Commission can scarcely fail to recognize the justice of their demands.

Positive remedial legislation in the interest of railroads, as distinct from mere administrative sanction of rate increases, is distinctly demanded also by the situation respecting arbitration of wage disputes. The Erdman Act of 1898 is notoriously unfair to the carriers, leading, as it always does, to a compromise decision rather than to a settlement upon the merits of the case. This results from the fact that the entire responsibility for the final decision rests upon the third member of the arbitration board representing the public as distinct from the other two representatives of the carriers and their organized employes respectively. The law should be amended to provide for a commission in part composed of permanent Government experts—the remainder of its membership being made up of members chosen to represent directly the three parties in interest, the railroads ,the employes and the public. But the public representation should at all times outnumber that of the carriers and the operatives. Only thus, by a massing of responsibility in strictly impartial hands, may decisions be expected on the real merits of the case. It is probable, also, that the time has come, if politically possible, for a prohibition of strikes or lockouts on railways pending the report of the official tribunal. As for compulsion in enforcing the award, that may probably be left to the force of public opinion. The experience of Canada and other countries, however, clearly points to the inadvisability of entrusting all these matters of wage determination to tribunals, judicially constituted; that is to say, composed of judges bound by the rigors and formalities of legal procedure.

The railways deserve protection, finally, against further continuance of special inexpert legislation by the several states. With powerful railroad commissions, now established by law in most of the commonwealths, the legislatures ought to refer all such matters of regulation and service to such boards. The enactment of drastic and inflexible full-crew and hours of service laws may work great hardship in the future. All such matters should be referred to administrative boards, which may apply the law with due regard to public needs and the circumstances of the case.

The Daily Freight Performance of a Mile of Railway

By LOGAN G. McPHERSON,
DIRECTOR, BUREAU OF RAILWAY ECONOMICS.

THE freight trains of the United States move for the 90,000,000 inhabitants of the country very nearly everything that they eat and wear, the materials with which their buildings are constructed, the articles with which they are furnished and the various things of use. As there are over 2,000,000 freight cars in the United States it follows that, roughly speaking, one freight car is required to supply the needs of every 45 persons.

As there are 90,000,000 persons in the United States and 240,000 miles of railway line it follows that every mile of railway meets the needs of about 375 persons. As the capitalization of the railways of the United States averages about $60,000 a mile, it appears that the railway companies have made an investment of about $60,000 to meet the transportation needs of every 375 persons, which is equivalent to an investment of about $160 to meet the transportation needs of each man, woman and child in the United States. The net dividends paid in 1910 average about $1,220 a mile. As one mile serves 375 persons this is an average dividend of about $3.26 per person, which is a fraction less than one cent a day. These are averages obtained from round numbers, but averages are useful in "giving an idea."

The 2,000,000 and upwards of freight cars that are in the service of the railways of the United States carry a great variety of commodities. Between a ton of coal at the one end of the list and a ton of candy or perhaps of feathers at the other end is a vast range of things of widely differing degrees of serviceability and there is wide difference in the periods required for their consumption.

As an aggregate can best be comprehended through a study of its parts an idea can perhaps best be gained of what all of the railways of the United States do in a year by ascertaining what the simplest linear unit of a railway, which is one mile, does in the simplest unit of time, which is one day. To ascertain exactly what traffic is actually moved over a mile of railway in one day two railway companies were respectively asked to compile this information for their respective lines. One is an Eastern trunk line having a greater density of traffic than any other in the United States, and its traffic is typical of the manufacturing region which it serves. The other is a railway of the Middle West whose traffic is naturally typical of the grain raising, meat-producing, cotton-grownig, lumber-producing region which it serves. Officers of these railways have furnished the information here set forth.

Over one mile of the Eastern railway pass in

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one day 794 freight cars, 105 passenger cars, and 46 locomotives. Over one mile of the Western road pass every day 198 freight cars, 27 passenger cars and 12 locomotives.

The Eastern railway hauls on the average over each mile each day enough cement, brick, and lime to supply 1,976 persons for one year; enough coal and coke to supply 1,594 persons one year; enough cotton to supply 794 persons one year; dressed meat to supply 318 persons one year; fruit and vegetables to supply 1,176 persons one year; iron for 11,146 persons; ores for 329 persons; poultry, game and fish for 650 persons; stone and sand for 1,308 persons; sugar for 825 persons; wines, liquors and beers for 381 persons; wool for 1,270 persons for one year. The freight per mile per day thus expressed aggregates 10,552 tons, leaving 2,942 tons, or nearly 6,000,000 pounds, of other commodities not so classified that the average consumption can be ascertained.

The Western railway hauls on the average over each mile each day enough cement, brick and lime to supply 302 persons for one year; enough coal and coke to supply 56 persons for one year; enough cotton to supply 1,698 persons for one year; enough dressed meats and other packing house products to supply 1,045 persons for one year; enough flax and other seed for 17 persons for one year; enough flour for 455 persons; other mill products for 569 persons, petroleum and other oils for 633 persons; poultry, game and fish for seven persons; fruit and vegetables for 249 persons, grain for 146 persons; hay and straw for 14 persons; iron for 110 persons; rice for 1,122 persons; salt for 1,896 persons; stone and sand for 16 persons; sugar and molasses for 1,089 persons; wines, liquors and beers for 297 persons. The 1,106 tons of lumber which comprise about two fifths of the daily traffic over one mile of this railway are enough to build 44 two-story, eight-room wooden houses of medium size. The lumber hauled by this road in the course of a year is sufficient in quantity to build over 45,000 such houses.

In order to conduct this daily transportation which consists on the Eastern railway of 1,170 passengers and 13,494 tons of freight per mile, to say nothing of the mail and express, there is required 90,600 pounds of coal as fuel for the locomotives.

The similar performance of the Western road calls for the services of various classes of employes, officers, station men, trainmen, trackmen and shopmen to an extent equivalent to the total service of 10 men for one day. For the 250 passengers and 2,653 tons of freight and the mail and express which it hauls over one mile in one day it receives $30.82, of which $19.10 is paid out for expenses of operation, $1.39 as taxes, $5.08 as interest and $2.82 for dividends, the remainder going for miscellaneous items and services.

The average performance for each mile for each day multiplied by 365 days gives the total performances for each mile for the year. This multiplied by 240,000, the aggregate number of miles, gives the total performance of all the railways of the United States for the entire year. It will be perceived that a difference of one cent a mile a day in the earnings or the expenses makes a difference of $876,000 a year; a difference of 10 cents a mile a day a difference of $8,760,000 a year; a difference of $1 a mile a day amounts to $87,600,000 for the year, and this is very nearly one third of the net dividends paid by all the railways of the United States for the entire fiscal year 1910.

The English Railophone

THERE are now well understood principles of electrical intercommunication by means of metallic cable circuits between fixed stations, and by means of etheral waves between moving objects such as ships at sea. Both of these systems, owing to the highly efficient instruments invented during the last thirty years have reached that perfection necessary for a successful and practical application. Neither of these principles, nor the existing instruments, have been applied with any degree of success for the estabilshment of reliable inter-communication under modern conditions between railway trains in motion, or trains and stations, for which purpose an arbitrary code of mechanical signals is still employed, augmented here and there by standard apparatus adopted from recent developments in other branches of electrical engineering.

Recently, however, Mr. H. Von Kramer, an electrical engineer of Witton, near Birmingham, England, has succeeded in establishing a telephonic link between an express train and a signaling box at Three Bridge Station on the London, Brighton and South Coast Railway. In his experimental installation he has employed the principle of electric induction between apparatus carried on board the train and a copper cable embedded in the earth several feet away, parallel with, but outside of, the permanent way.

The apparatus, which is known as a "railophone," is used as a train telephone. The equipment for the establishment of telephonic communication between a moving train and a station, as shown in the illustration, consists of a telephone transmitter and a pair of receivers, in the form of an operator's headgear, fixed in a soundproof telephone box, carried in the guard's van of the train. These instruments are electrically connected with two large insulated copper coils mounted in a wooden casing, called "the railophone frames" suspended by iron brackets from the coach. The "upper frame" is suitably wound for sending, and the "lower frame" for receiving a telephonic message.

The telephonic currents produced by the voice of the operator create a magnetic field which waxes and wanes in unison with the alternations of the voice. This field, emanating from the railophone "upper frame" induces an electric current of corresponding periodic pulsations in the metallic conductor buried in the earth alongside the railway track. This "ground wire" is connected to similar telephone instruments fixed at stations, and if desired may be linked up with the general telephone and telegraph system of the country. Telephonic conversation is carried on through the railophone just as through an ordinary telephone, no change-over switch from "sending" to "receiving" being required.

There is no mechanical contact between the

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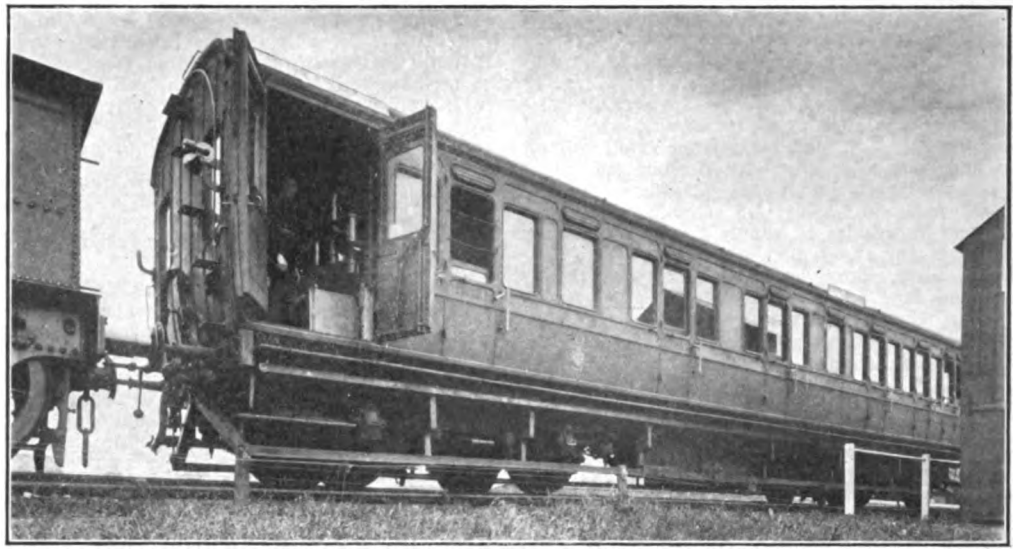

LOCATION OF RAILOPHONE IN ENGLISH PASSENGER COACH.

"ground wire" and the moving train. The connection is "wireless" or accurately described as "wireless inductive," the telephonic current being transmitted through the space which exists between the ground wire and the lower frame on the passing train. Inversely, telephonic currents, inductively imposed upon the ground wire by the upper train frame, are picked up at the stations by telephonic receivers which are pressed by a steel band against the ears of the operator.

In the original railophone system there were no means of "capping up" and as is still the case with radio telegraphy on board ship, so that the railophone operators had to be in constant attendance. This shortcoming, however, has recently been rectified by the introduction of a highly sensitive detector—the joint invention of Mr. H. von Kramer and Dr. Gisbert Kapp, professor of electrical engineering in the University of Birmingham. By the aid of the detector, which corresponds to a "coherer" in wireless—the exceedingly feeble electrical impulses received on the train form a vibrating charge sent into the ground wire is picked up and "relayed" into suffiicently strong currents to ring a calling bell, or sound a powerful hooter.

The ringing up of a station from a moving train is effected by the same means. The train telephone enables guard and signalman to communicate with each other—whether the train is in motion or at a standstill—for the purpose of traffic regulation, in case of accidents or during fogs or snow storms, and messages to and from passengers can be "railophoned" with ease and accuracy. In case anything unforeseen happens, on, or to a train, immediate communication with the nearest station is assured. Many other applications have been suggested, as for example, the railophone is also used as a train telegraph. With slight modifications to the system as applied for telephony, and by the addition of a few telegraphic instruments, it can transmit telegraphic signals by means of a Morse key. On the Stratford upon-Avon and Midland Junction Railway either mode of communication, telephonic or telegraphic is employed without necessitating the use of change-over switches. Particular attention is drawn to the fact that with the railophone system of combined telephony and telegraphy, the sending operator can be instantaneously interrupted, an important feature in railway work in cases of emergency.

Again, the railophone may be used for railway signaling, the "Kramer-Kapp" resonating relay, called the "K-K" detector being principally used for the detection of the railophonic impulses sent out from signal boxes or trains and making it an important factor in the solution of the problem of automatic train signaling. By its use its inventors claim that it is now possible to cause the ringing of bells, the sounding of steam whistles or motor hooters, the bringing into play of mechanical movements capable of opening or closing lever controlling steam valves of locomotives, signal levers interlocking gear, the operation of vacuum brakes for the ignition of indicating electric lamps—all for the purpose of direct or indirect control of trains.

This detector has even been successfully adapted for automatically stopping a train without the intervention of the guard or driver by means of the von Kramer system for railophone signaling which provides for the automatic blocking of a section against a following train and the liberation of the section after the first train had passed out of the danger zone. It is also applicable to double automatic railway signaling and it is now possible to not only signal from a train when it reaches the entrance of a section to the signalman, but also to signal from the signal box to the train irrespective of its position in the section or whether it is proceeding at full speed or standing still anywhere on the track.

The electrical equipment at the station consists of a signal box fitted with a "K-K" detector, several sending, receiving and recording apparatus, and the necessary underground electric lines. These circuits are divided into three distinct groups, viz.:—the main section, (of any suitable length from one mile up to ten miles and more if desired) the restoring section, and the clearing

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section, the latter two sections being each approximately 100 yards long.

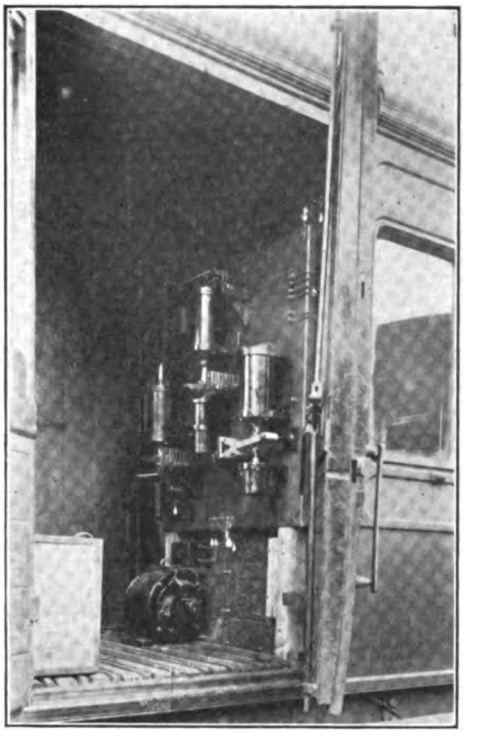
On the trains the electric equipment consists of two "railophone frames" fixed to an ordinary coach, and a series of apparatus for receiving, sending and recording signals. By means of the apparatus provided on the train and in the signal box a certain cycle of operation is carried out. At first when a train enters the main section a red lamp is lit in the signal box. The lamp is placed over that particular signal which controls the semaphore signal protecting this section. Then the red lamp continues alight as long as the train occupies the main section and until it leaves the restoring section.

Simultaneously with the light of the red lamp, an audible signal in the form of a bell or buzzer, sounds in the signal box. These visual and audible signals indicate to the signalman the entry of the train into the main secton, and warn him of the necessity of protecting it by moving the signal lever into the "danger" position. Then, unless the signalman responds to these signals within a fixed period of approximately ten seconds, the signal lever is automatically pulled into the "danger" position. This automatic operation is simultaneously registered by a recording instrument. Whether the signal lever has been pulled into the "danger" position by the signalman or by automatic means, it remains electrically locked in that position until the train has left the section. This renders it impossible to again open the section to admit a second train while it is occupied by the first train.

In case the signal lever is automatically replaced, the train is allowed to travel the section, but apparatus are brought into play causing a powerful alarm gong to sound outside the signal box, and the incident to be automatically registered on a recording instrument, which indicates the time of the occurrence. By these means a close control is kept over the signalman's actions. Should the signalman operate the signal lever on being warned, nothing further transpires in the signal box until the train enters the clearing section when the red lamp is automatically extinguished and a green lamp lit, which is, in turn, extinguished when the train finally leaves the clearing section, the signal lever being simultaneously unlocked.

After the train has sent out the signals indicating its entry into the main secaion, it is, by means of a time limit device, enabled to receive signals or instructions affecting its movements while in the main section. In this receiving condition, the train can at any moment receive either telephonic or telegraphic instructions, and can be brought to a standstill by the signalman at will, or the guard on the train car, if desired, place himself into communication with the signal box. Under normal conditions a second train, unless it overruns the danger signal at the entrance of the main section, can not enter the main secion if same is still occupied by the first train. In the event, however, of the second train ignoring the danger signal, and entering the section, both trains are automatically brought to a standstill. This incident is also recorded on the train and in the signal box.

If a second train enter the section in the opposite direction to the first train, both are pulled up, thus avoiding all possibility of "head on" collisions. The train on entering the restoring section automatically receives, while passing through



A Railophone Installation.

this section, an impulse which through the "K-K" detector, brings into operation apparatus which first advises the signalman of the trains' entry into the clearing section by automatically lighting a green lamp in the signal box and then, on entering the subsequent main section, indicates its approach to the succeeding signal box, reproducing once more the cycle of signals as described. As soon as the train has left the clearing section the instruments in the signal box are restored to their normal condition, ready to deal with further incoming trains. If the train be prevented from entering the succeeding main section, the green lamp continues to glow, and, in addition, the alarm gong is sounded outside the signal box, the incident being again recorded. As the main section is simultaneously under current, it provides a double safeguard against the entry of a second train into the section. On receiving permission to enter the succeeding main section, the train may proceed. If the driver should proceed before he receives such permission, the train is automatically pulled up on entering the succeeding section.

These railophone signals are "uni-directional" and cannot stray to other trains as was the case when attempts were made to use the radio-telegraphic principle. There are no sliding brushes required, no mechanical or electrical contact bars or switches under the train, no bonded rail joints or any obstructions to the permanent way, or is the system influenced by atmospheric disturbances or climatic conditions.

It is claimed that the upkeep of the ground wire circuits, owing to their being embedded in the earth, is practically nil. The ground wire serves a large number of trains per day, and the initial cost for same per train mile is therefore a

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very small item. The five principal devices used in the signaling system include the stationary underground metallic circuit, which is non-inductive to outside influences, and the movable circuit consisting of two large frames fixed to the coaches of a train, these frames serving for telephonic, telegraphic and signaling communication. There is also the turnable detector acting as a sensitive relay under railway conditions, and the alternating current apparatus and instruments for sending signals. Finally, there are the automatic solenoids operating the alarm signals and controlling gear.

It is said that the adoption of a railophone automatic signaling plant does not entail any modification of the existing rules and regulations. With the exception of the audible and visible signal in the signal box there are, under ordinary working conditions, no additional apparatus to be attended to by the signalman. As the engine does not carry any railophone apparatus whatever, the driver is not diverted from his usual duties.

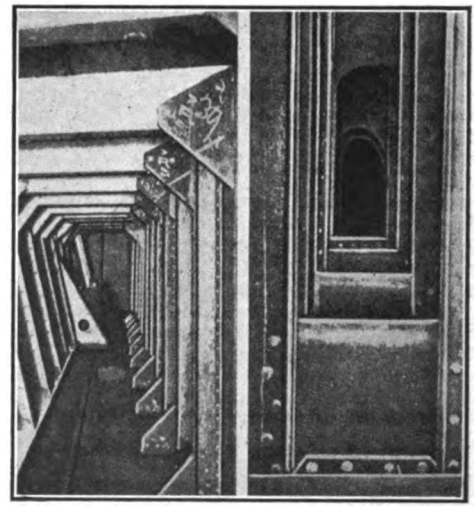
Finally, it is claimed that the railophone system does not encourage slackness on the part of the driver and signalman through their placing blind reliance on the automatic apparatus to perform their duties. On the contrary, it increases their alertness as any inattention or carelessness on their part would be carefully and automatically recorded and could be consequently used as evidence against them. By thus constantly checking every irregularity, it is considered that the large number of daily occurring minor accidents, which are frequently more serious, can be greatly reduced if not wholly avoided. While all mistakes are duly recorded, the system provides substantial means for automatically retrieving such errors and so prevents collisions.

Modern Transportation

IT is a recreation to the busy railroad official to occasionally turn his thoughts from the problems immediately at hand, to the developments in those other branches of transportation, not associated with railway operations.

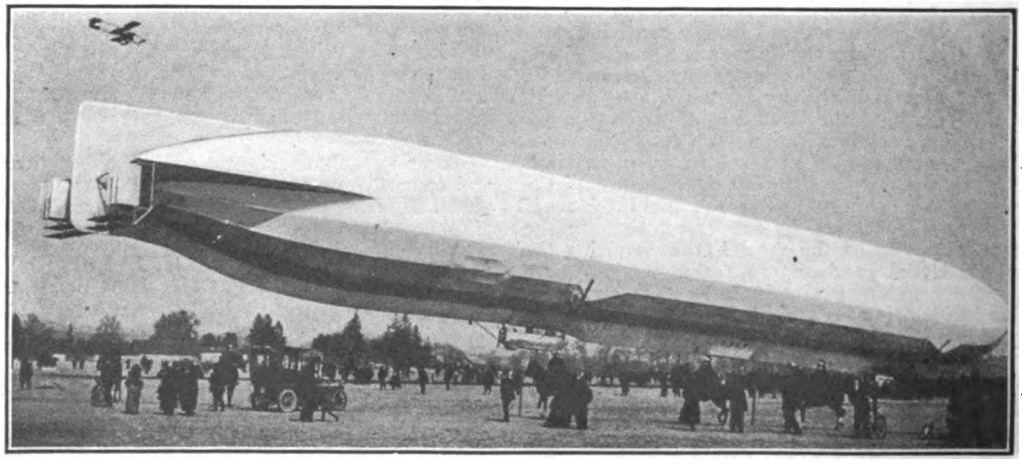
The improvements in steamship construction which have resulted from the Titanic disaster of a year ago, are of more than usual interest because through this disaster the railway service suffered irreparable loss in the deaths of two of its foremost railroad officials. The improvements referred to have been developed in the hull construction of the great ocean liners, as illustrated in the accompanying photographs. Hulls are now built double with transverse bulk heads extending between skins to the upper deck. The new Hamburg-Amercan liner, Imperator, the largest vessel afloat, was designed and built on this principle, while the White Star liner, Olympic, originally built with a single hull, has been reconstructed along these lines, at a cost of $1,250,000. These improvements add immeasurably to the safety of ocean travel.

Turning from the sea to the air, the accompanying photograph of one of the latest German Zeppelin air crafts, is of interest. While disaster after disaster has accompanied the construction and operation of these monster vessels,



Showing the Construction of the Imperator's Double Hull.

New Inner Skin Put in the Olympic. Sister Ship of the Titanic.



PHOTOGRAPH OF ONE OF THE LATEST GERMAN ZEPPELIN AIRSHIPS.

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PART OF THE JOURNEY OF A FIVE HOUR FLIGHT FROM PAU TO MADRID, SPAIN.
(Courtesy of "Flying," New York.)

the Germans stick to their task with a persistency that indicates their belief in the ultimate service and value of this class of aerialship. While still unwieldy in heavy gales, they can be operated under ordinary conditions with fair precision, and have rightfully earned the title of "dirigible." On account of their size, they are able to carry a large number of men and enough explosives to threaten the largest war vessel fleet in existence. For this reason they are receiving no small amount of comment and anxious consideration by other European powers.

A third picture which illustrates another style of aerial craft, shows Oscar Bider making his five-hour flight from Pau to Madrid, Spain. While aeroplanes have far from reached that stage of development where they may be considered from the standpoint of regular service, the illustration at least points to the future practicability of employing this character of transportation for carrying mail in mountainous and isolated countries. The flight referred to was over a distance of close to 250 miles and other flights over mountains have been made by a score of aviators, not to mention long flights over water as from France to England and the more recent flight from Key West, Florida, to Havana, Cuba.

Railways of the Philippine Islands

RAILROADS were rather late arriving in the Philippines. The Spanish colonist seems to have been averse to building railroads when railroads first came into use, probably for the same reason that the Japanese and Chinese have not much use for a horse. Horses, you know, can carry a much greater cargo than can a man, and for every horse in Japan and China it is figured that about half a dozen able-bodied burden-bearers are robbed of their vocations. The Spaniard in years agone had a hundred or a thousand natives at his beck and call to do his bidding. It mattered not whether his wishes were to have his feet bathed or his perspiring body fanned as he dined, or whether there was a few tons of raw sugar or several carts of hemp to go to market. Human "horses" were there by the thousands to do the work. So, it happened that the Spaniards were content with some 120 miles of railroad,—and that British,—when we landed.

But railroads, as in the case of many other things, are better late than never. That is the way our officials figured it. We early learned that the islands were rich, indeed, in natural resources. The trouble was to extract the riches and to get them to market. In the absence of good transportation the natives were, of course, not stimulated to over-production. They barely produced enough for their own keep. What rice and hemp was exported in Spanish times came from localities easily accesible from boat landings. In this way the vast empire in the interior of the larger islands lay dormant for decades, if not for centuries. There is probably no country anywhere of equal natural wealth where less has been done along modern lines.

The British line that we found in operation extended from Manila, northward on Luzon, to Dagupan. It was known as the Manila and Dagupan. It was a narrow-gauge affair, with watch-fob engines and freight cars not much bigger than good-sized drygoods boxes. The passenger coaches compared to ours about like an old horse car would with a modern trolley. Britishers held the higher positions, while natives were employed to operate the rolling stock. Nevertheless, as poor as this road was it was markedly in advance of the general order of things, and from it the inference must not be drawn that the British are novices at the railroad game. Far from it.

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A Passenger Train Passing Through a Cocoanut Plantation in the Philippine Islands.

As soon as our officials could get to the proposition, the matter of extending the railroad system was undertaken. Concessions for the building of two general systems were let to a syndicate of capitalists. One was for nearly 500 miles of additional road on Luzon. The other for about 300 miles in the Visayan Islands,—the sugar cane belt. The concessions stipulated that both systems should pass through the most densely populated communities, and that terminals should be on deep, safe harbors. The capitalists who were awarded the concessions formed the Manila Railroad Company, and in addition to handling the new lines this company has taken over the old Manila and Dagupan system.

The actual work of construction was commenced on the Island of Cebu, in the Visayan group, in 1907. About the same time work was commenced on the Island of Panay, lying close to Cebu. Both these lines are now complete and are in profitable operation. These two systems are no doubt the best samples of modern railroad building in the group. The road is standard gauge and the rolling stock the best that can be had, climate and traffic considered. All the terminals are double-tracked, the rails are of the best American steel, and block systems have been installed. The bridge work, of steel and cement, is especially creditable.

With the old Manila and Dagupan line extending its tracks southward to Batangas, connection will sooner or later be made with the line from Pasacao to Albay in southern Luzon. This with that part of the Manila and Dagupan system extending northward will soon give Luzon a sort of transcontinental system its entire length of about 1,000 miles, which is some remarkable distance for an island. The original Manila and Dagupan line has been extended from Dagupan northward to within a very few miles of Baguio, the summer capital of the Philippines, which lies on the summit of the Benguet Mountains. These mountains are locally known as the Philippine Alps, and some tremendous engineering feats have been performed in getting the line into Baguio.

Negros Island is perhaps the richest sugar-producing island in the archipelago, and it now has more than 100 miles of road tapping its abundant fields and insuring direct connection with steamers going everywhere. Cebu Island is the

Railroad Shops and Yards, Calambo, Laguna Province.

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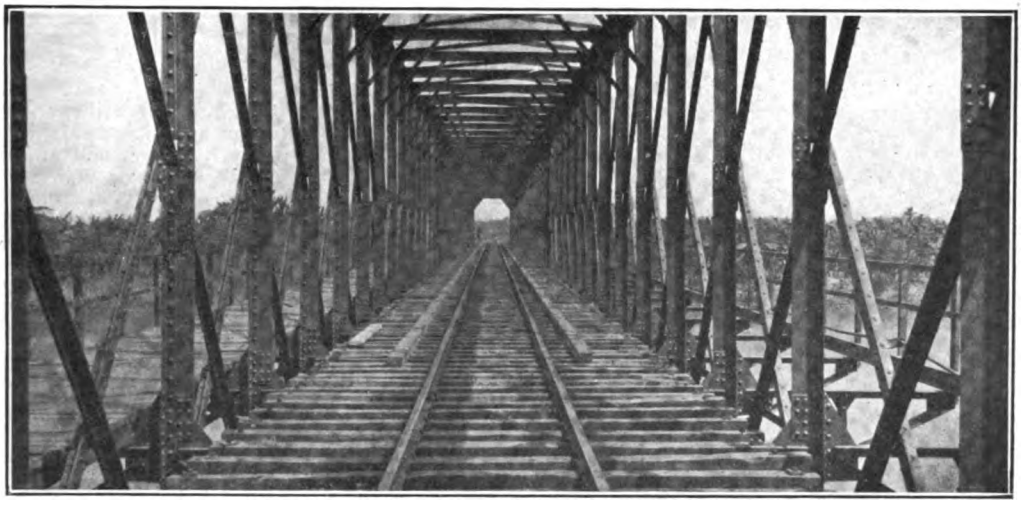

A Railroad Bridge in the Philippine Islands During Construction.

most densely populated of the Philippines. It will shortly have some eighty miles of road, and the city of Cebu is a railway terminal which will compare favorably with some of our own smaller terminals. The Cebu road also taps a rich coal field. The Panay line runs from Iloilo, (pronounced eelo-eelo) the capital, to Capiz on the north coast. Iloilo is a city of trolleys, electric lights, telephones, and other conveniences, and she is doing all she can to outshine Cebu as a terminal point. A branch of the Panay lines extends to Batan, where one of the finest harbors in the islands lies. The Panay system to date has a mileage somewhere near a hundred, not figuring on the big terminals.

The line extending from the port of Pasacao, on the west coast of Luzon below Manila, southward to Legaspi, situated on the Gulf of Albay on the east coast, will tap the richest hemp fields in the world. From Batangas to Pasacao is but a short distance, but with much rugged country intervening. When this gap is connected up, and the Baguio line is extended north to Aparri at the northernmost point of Luzon, the big island's trans-continental system will be a reality.

The Manila and Dagupan line is running numerous branch lines out of Manila in all directions. One line extends around the bay to Cavite, another climbs to an altitude of several hundred feet to reach Antipolo, where the faithful go annually to worship the virgin of that name, twenty-five miles away. Since building its half dozen branch systems and extending its line to the north and south of Manila, this old road, despite the outlay required to repair the tremendous damage done its property during the insurrection, has more than doubled its earnings over the best Spanish year.

No doubt it will come as a surprise, a painful one at that, to most Americans when they are told that the money for these railroad projects came almost solely, if not wholly, from England. England has made money from her colonies. Fact is, the colonies have made England. Likewise, England's colonies have made many British millionaires. So it was that London capital gobbled up our Philippine proposition in railroad building before Americans could open up their purses. Foreigners also supplied the money for most, if not all, of the street railway systems in the islands, all of which are profitable properties. Thus, while we are benevolently preparing the natives for self-government, others are reaping the financial profit.

We are doing a great service in educating the Filipino youth. There is not a village, town, or city but what has its school or system of schools. The natives are going to high school, to normal, to trade schools, and colleges at government expense. Many of them are sent to this country to complete their studies. But this vast system of education, involving the expediture of millions of pesos annually, will not be far in advance of the railroads as a medium for uplifting the native and leading him on to better things. Manila newspapers not long ago started a crusade against the government's over-elaborate educational system, claiming the system was taking the people from the fields and factories. But already the coming of the locomotive has started the plows and cultivators, and idle fields are now black from upturned sod or green from vegetation. Immense sugar refineries, costing great sums, and some of which are backed by Filipino capital, are springing up beside the tracks. A new era is on,—the Philippines, long asleep, are awakening simultaneously with their Far Eastern neighbors. Railroads have been a big factor in making modern Japan. They will do as much, possibly more, for our island possessions away out there in the "eye of the world."

May Meeting of Central Railway Club.—The regular monthly meeting of the Central Railway Club, was held in Buffalo on the evening of May 9th. Mr. B. H. Mann, of St. Louis, signal engineer of the Missouri Pacific, and president of the Railway Signal Association, presented an extremely interesting paper dealing with the "Signal Departments of the Railroads." On account of the prominence of the speaker and the importance of the topic, there was a large attendance who listened with close attention to what Mr. Mann had to say. The discussion which followed brought out many interesting points with regard to signal operation and installation.

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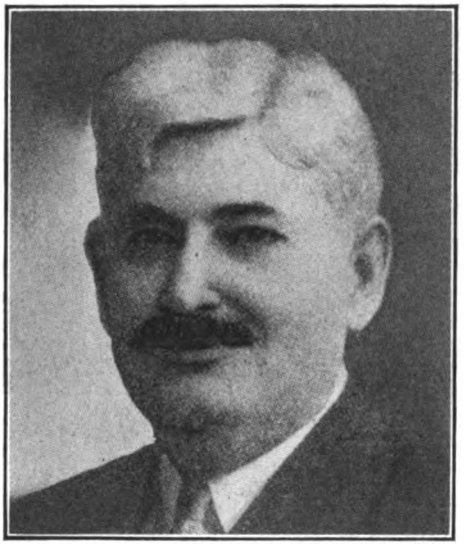
Personal

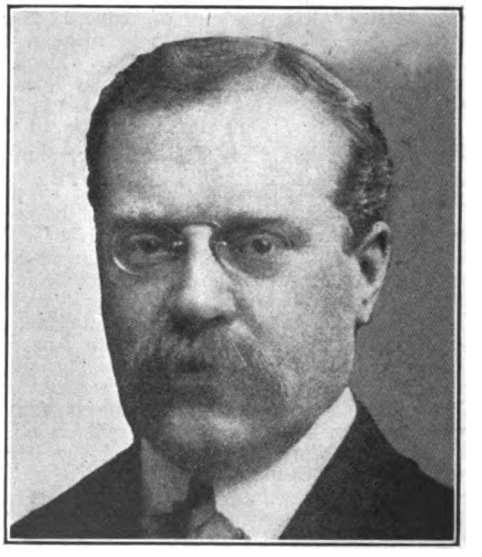


E. F. Kearney.

EDWARD FRANCIS KEARNEY, who has been elected first vice-president of the Texas and Pacific, in charge of maintenance, operation and traffic, with headquarters at New Orleans, La., and Dallas, Tex., was born March 27, 1865, at Logansport, Ind. He was educated in the public schools and began railway work in 1882 as telegraph operator for the Pennsylvania Lines, and was subsequently freight clerk, chief operator superintendent's office, train despatcher and trainmaster's clerk and chief clerk to superintendent, until December, 1899, when he was made trainmaster at Indianapolis, Ind. In February, 1903, he went to St. Louis, Mo., as superintendent of the Terminal Railroad Association and St. Louis Merchants' Bridge Terminal Railway. One year later he left to become supervisor of mails of the Chicago, Rock Island and Pacific, and two months afterwards was appointed general superintendent of transportation of the St. Louis and San Francisco, resigning in October. Mr. Kearney went to the Missouri Pacific in April, 1905, as superintendent of terminals at St. Louis, and on February 15, 1908, was made superintendent of transportation of that road and the St. Louis, Iron Mountain and Southern. He was promoted to general superintendent of transportation of the Missouri Pacific system in January of this year, and now assumes the vice-presidency of the Texas and Pacific, as above noted.

W. V. S. Thorne.

WILLIAM V. S. THORNE, director of purchases of the Union Pacific, with office at New York, has been elected vice-president of the Union Pacific, the Oregon Short Line and the Oregon-Washington Railroad and Navigation Company, with headquarters at New York. He was born on March 22, 1865, at Millbrook, N. Y., and graduated from Sheffield Scientific School of Yale University in the class of 1885. The same year he began railway work with the St. Paul, Minneapolis and Manitoba, now a part of the Great Northern, and at various times during the following nine and a half years he was stationed in Minnesota, in South Dakota, in Wisconsin and in Montana, with the engineering department on location and construction work. He was then transferred to the operating department as clerk to the general manager, and subsequently was promoted to assistant purchasing agent, and then to superintendent of the St. Cloud, Minn., shops. His next position was assistant superintendent of the Breckenridge division, and he was later made superintendent of the Eastern Railway of Minnesota division. In 1895 he was elected vice-president and general manager of the Pennsylvania Coal Company, and vice-president of the Erie and Wyoming Valley Railroad, ont of its subsidiaries, with headquarters at New York, and soon afterwards was elected president of the Delaware Valley and Kingston Railway, a company which was formed to build a railroad along the route of the old Delaware and Hudson Canal from Hawley, Pa., to Kingston, N. Y. These three properties were sold to the Erie Railroad in 1900. In the summer of 1902 he was appointed assistant to E. H. Harriman, of



W. V. S. Thorne.

the Southern Pacific and Union Pacific systems, and the following year was made director of purchases of both systems. In consequence of the order of the Supreme Court, separating the Union Pacific and the Southern Pacific, he resigned on January 31, 1913, as director of purchases of the Southern Pacific, remaining with the Union Pacific.

Edward Chambers.

EDWARD CHAMBERS, assistant freight traffic manager of the Atchison, Topeka and Santa Fe Coast Lines, has been elected vice-president, in charge of traffic, with headquarters at Chicago, succeeding George T. Nich-

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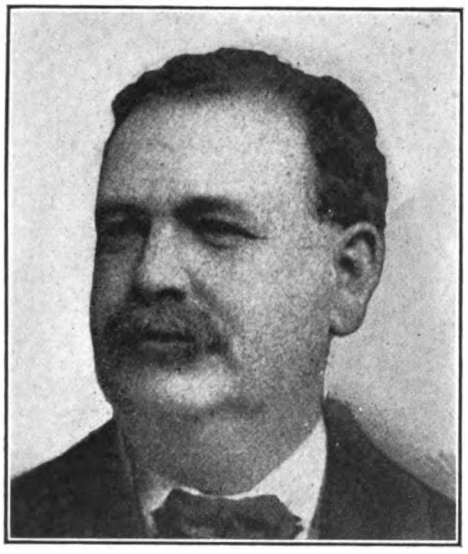
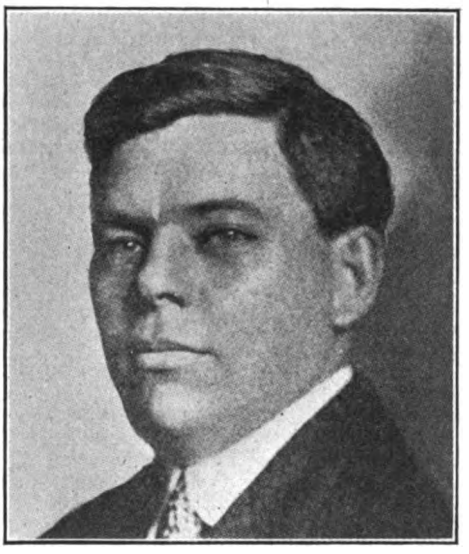


EDWARD CHAMBERS.

olson, deceased. Mr. Chambers was born February 16, 1859, at Waukegan, Ill., and was educated in the public schools. His entire railway service has been with the Atchison, Topeka and Santa Fe system, with which road he began work in November, 1878, as a freight handler on the platform at Pueblo, Colo. He remained at that place until 1885, successively as check clerk, foreman of transfer platform, and cashier. He was then transferred to San Diego, Cal., as local agent, and in 1887 became local agent at Los Angeles, Cal. Seven years later he was promoted to assistant general freight agent at that point; from 1894 to 1896 he was general freight agent, with headquarters at the same place, and then until March, 1905, he was freight traffic manager of the Coast Lines, with office at San Francisco, Cal. He relinquished the duties of the latter position June 1 to become vice-president of the Santa Fe system, in charge of traffic, as above noted.

Ralph C. Caples.

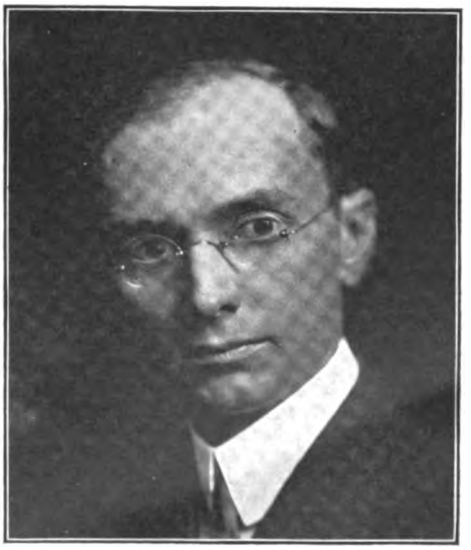
RALPH C. CAPLES, until recently general agent of the traffic department of the New York Central Lines, with headquarters at New York, has been appointed general traffic manager of the Western Maryland, with headquarters at Baltimore, Md. He was born on December 23, 1872, at Fostoria, Ohio, and was educated at Oberlin College, Oberlin, Ohio, also at Northwestern University, Evanston, Ill., and in 1896 entered Princeton University, Princeton, N. J. Previous to this, at the age of 18, he became yard clerk on the Lake Erie and Western, at Fostoria; the following year was advertising agent of the New York, Chicago and St. Louis, and in 1892 he became traveling passenger agent for the Mobile and Ohio. After leaving college he was passenger agent of the Delaware, Lackawanna and Western at New York, and then for two years was general passenger agent of the Detroit and Lima Northern, now a part of the Detroit, Toledo and Ironton. During 1900 and 1901 he was general manager at Tampa, Fla., of the Florida West Coast Transportation Company, operating a line of steamers. In 1907 he entered the service of the New York Central and Hudson River, and in May of that year was made special representative of that road. In February, 1909, he was promoted to general agent of the traffic department, covering all New York Central Lines both east and west of Buffalo, N. Y., and left that position on June 1, to become general traffic manager of the Western Maryland as noted above.



RALPH C. CAPLES.

H. W. Stanley.

H. W. STANLEY, who was recently appointed general manager of the Seaboard Air Line Railway, with office at Portsmouth, Va., was born February 13, 1874, at Petersburg, Va. He was educated at Lynchburg High School and began railway work as telegraph operator on the Norfolk and Western Railway. Later he served in several capacities on



H. W. STANLEY.

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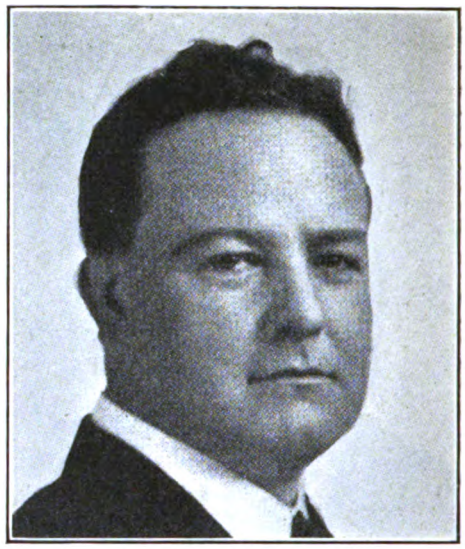
that road until December, 1895, when he became chief clerk to the superintendent of the Southern Railway at Knoxville, Tenn. In May, 1897, he accepted service with the Seaboard Air Line Railway as secretary to the general superintendent and has been consecutively chief clerk to the general superintendent and general manager, trainmaster, superintendent, superintendent of transportation, assistant general superintendent, general superintendent transportation and assistant general manager, from which latter position he is now promoted.

George A. Blair.

GEORGE A. BLAIR, who has been appointed assistant freight traffic manager of the Chicago, Milwaukee and St. Paul Railway, began his railroad career with the old Ohio and Mississippi Railroad at Cincinnati, Ohio, as bill clerk in the local freight office. From that road he went to the Atchison, Topeka and Santa Fe Railway as traveling freight agent at Cincinnati and of the Chicago, Milwaukee and St. Paul Railway in the same city. Mr. Blair later became general agent of the latter road at Pitts-

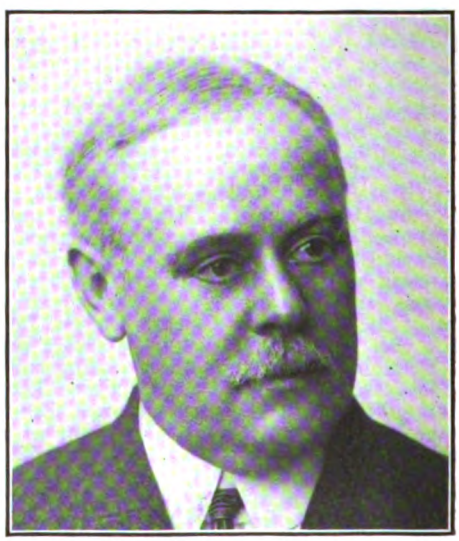
GEORGE A. BLAIR.

burgh, Pa., and from that position was appointed general Eastern agent for the company at New York. He was made assistant general freight agent, and served until September 1, 1912, when he accepted appointment as general traffic manager of the Chicago and Alton Railroad. A general circular from the office of President Worthington says: "Mr. Geo. A. Blair, having resigned as general traffic manager of this company, effective May 1, to return to and accept promotion on the Chicago, Milwaukee and St. Paul Railway, until further notice Mr. C. A. King, freight traffic manager, will have charge of freight traffic, and Mr. Geo. J. Charlton, passenger traffic manager, will have charge of passenger traffic. It is with regret on the part of the Chicago and Alton Railroad Company that Mr Blair leaves its service, where he has proven himself to be so thoroughly efficient, to accept this well merited recognition and advancement."



W. E. Prendergast.

W. E. PRENDERGAST, who was recently appointed general freight agent of the Chicago, Milwaukee and St. Paul Railway, effective May 1, started in the railroad business in 1884 with the Chicago, St. Louis and Pittsburg Railroad, afterwards the Pittsburg, Cincinnati, Chicago and St. Louis Railroad, under Mr. D. T. McCabe, now vice-president of the Pennsylvania Lines West of Pittsburg. He remained with that company for ten years and then for several years was secretary to Mr. Marcus Daly, owner of the Anaconda Copper Company. Mr. Prendergast entered the service of the Chicago, Milwaukee and St. Paul Railway in 1897, as chief clerk to the assistant general freight agent, in 1902 became chief clerk to the general freight agent and in 1905 was made chief clerk of the general freight department. He was appointed assistant general freight agent January 1, 1907, and served in that office until his recent promotion.



EDWARD BRIGGS.

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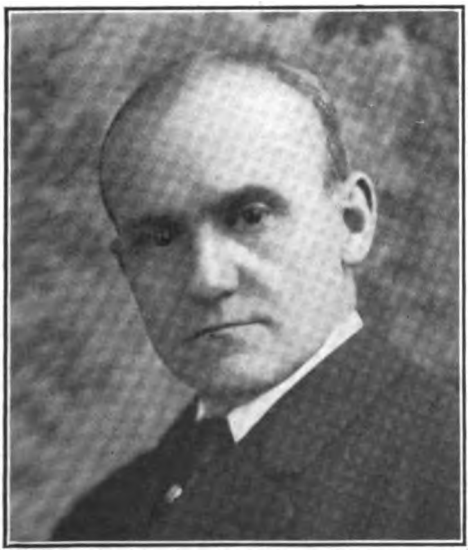
Edward Briggs.

EDWARD BRIGGS, who on May first, was appointed assistant general freight agent of the Wheeling and Lake Erie Railroad, began his railway career as bill clerk in the local freight office at Cleveland of the Connoton Valley Railway in 1882. He was promoted to local ticket agent of same company which position he held until 1884 when he was appointed local freight agent. In 1888, he became chief clerk to the general freight and passenger agent of the Cleveland, Canton and Southern Railway, and in 1899, he accepted the position of chief clerk to the traffic manager of the Republican Iron and Steel Company at Chicago. From there in 1900, he went to the Wheeling and Lake Erie at Cleveland, as chief clerk to the general traffic manager, and when the Wheeling and Lake Erie, Wabash, Pittsburgh Terminal Railway and Wabash Railroad interests were merged at Pittsburgh in 1906, he was appointed chief clerk to the general freight department at that city, and in 1907 was made commercial agent of the three roads. In 1908, he accepted the position of general agent of the Wheeling and Lake Erie at Cleveland, which position he held until his recent appointment as assistant general freight agent.

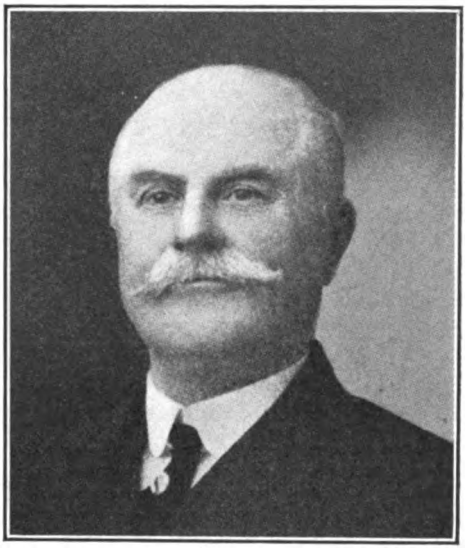


Harry T. Wilkins.

HARRY T. WILKINS, formerly chief clerk in the office of the Chief Mechanical Engineer of the Pennsylvania Railroad, has just been appointed special agent of the Traffic Department with office in Broad Street Station. Mr. Wilkins will have charge of the preparation, installation and display of the Pennsylvania Railroad System's exhibit at the Panama-Pacific International Exposition to be held in San Francisco in 1915.

Mr. Wilkins has been in the service of the Pennsylvania Railroad Company since 1888, when he became a stenographer in the Passenger Department. He was one of the first stenographers on the "Pennsylvania Limited," and in February, 1891, he was transferred to Altoona in the office of the General Superintendent of Motive Power. He came to Philadelphia in March, 1893, as chief clerk in the office of the Chief of Motive Power.

The Pennsylvania Railroad has taken part in practically all important expositions in the United States and abroad since the World's Fair in 1893, and Mr. Wilkins has been closely identified with the preparation of the company's exhibits.



F. M. Bisbee.

F. M. BISBEE has been appointed chief engineer of the Santa Fe's Western lines, with office in Amarillo, Tex. He was born on September 27, 1885, in Brunswick, Me. After graduating from the University of Maine he entered railway service in 1878 with the Santa Fe as a rodman, since which he has been consecutively transitman on the Atchison, Topeka and Santa Fe; superintendent of construction for the Mexican Central Railway; superintendent of tracklaying on the Santa Fe; superintendent of track, bridges and buildings on the Frisco System; from March, 1901, to July, 1902, general manager and chief engineer of the Tennessee Central Railway; August, 1902, to July, 1903, general manager, Los Angeles Land and Water Company; July, 1903, to July, 1904, engineer for B. Lantry and Sons, Fort Madison, Ia.; July, 1904, to April 1, 1913, engineer, Western lines, with headquarters in La Junta, Colo.

Robert A. Rutledge.

ROBERT A. RUTLEDGE has been appointed chief engineer of the Santa Fe's Eastern lines, with office in Topeka, Kan. He was born in Mercer county, Pennsylvania, on December 13, 1863. His family later moved to Kansas and Mr. Rutledge was educated in the public schools of that state and later attended the University of Kansas, being graduated in 1891. From August 1, 1892, to May 14, 1893, Mr. Rutledge was employed as a rodman on the G. C. and S. F. Ry. He moved to Colorado and was city engineer and city clerk of Florence, Colo., and county surveyor of Fremont county from January, 1894, to January, 1896. From then

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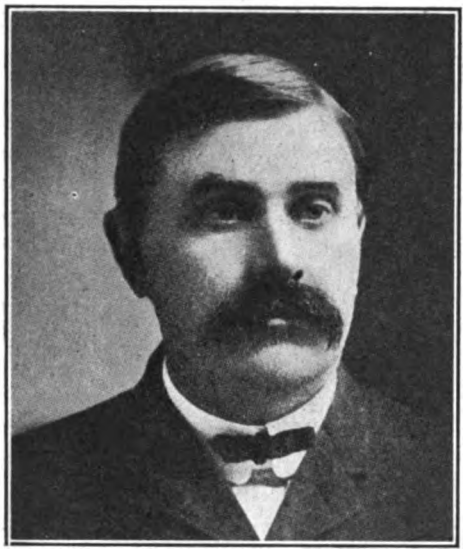
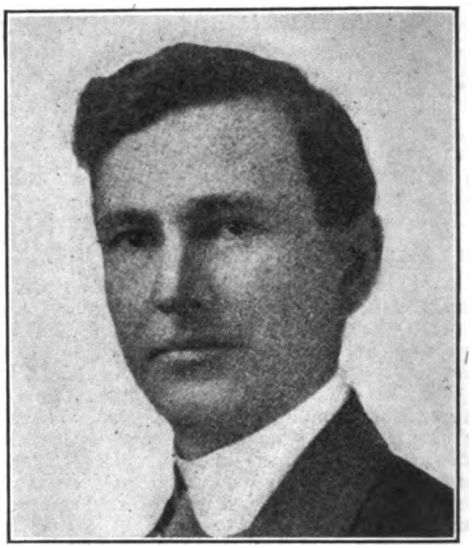


ROBERT A. RUTLEDGE.

until June, 1897, he served as deputy United States mineral surveyor in Cripple Creek, Colo. He returned to the G. C. and S. F. on June 16, 1897, serving as instrumentman in Temple until February, 1899. From that date until November, 1900, he was assistant engineer in charge of construction of yards at Belleville, Tex., and of reconstruction of the main track from Brenham to Sealey, Tex. From November, 1900, to September, 1904, he was assistant engineer, with offices in Cleburne and Beaumont. Two months as roadmaster were followed by an appointment to the position of resident engineer of the Beaumont and Southern divisions, with headquarters in Beaumont. This position he occupied until 1909, when he was transferred to Cleburne as engineer of the Northern division. One year later he went to Galveston to accept the position of engineer of the Gulf Lines, which he held until his recent promotion.

F. L. Thompson.

F. L. THOMPSON, who was recently appointed engineer of construction of the Illinois Central, was graduated from the University of Illinois in civil engineering, with the degree of B. S., in 1896. He entered the service of the Illinois Central June 18 of that year as chairman on the reconstruction and lowering of tracks on the lake front in Chicago, and later was made rodman and inspector on the concrete work. From February of the following year to February, 1898, he was rodman at Vicksburg, Miss., on the work of removing a 700-foot tunnel and making it an open cut and had charge of a concrete arch and building of a large freight house. He was then until January, 1900, rodman and assistant engineer on surveys and on grade reduction work, Fulton to Memphis, and from the latter date to August, 1901, assistant engineer in charge of grade reduction and double track work, Wickliffe to Fulton, Ky. He was subsequently for six months in charge of double track and grade reduction work from Irvington to Carbondale, Ill., and from February, 1902, to



F. L. THOMPSON.

February, 1903, was assistant engineer in the chief engineer's office at Chicago. The following eight months he was acting roadmaster of the Chicago division, being transferred to the Louisville division as roadmaster in October, 1903, and remaining in that capacity until January, 1907, when he was made assistant engineer of bridges. On July 1, 1910, he was promoted to engineer of bridges and buildings, which position he held until his recent appointment as engineer of construction, as above noted.

Ira L. Burlingame.

IRA L. BURLINGAME, who on April 14, was made general manager of the Terminal Railroad Association of St. Louis, as has already been announced, was born September 6, 1862, at Franklinville, N. Y., and was educated at

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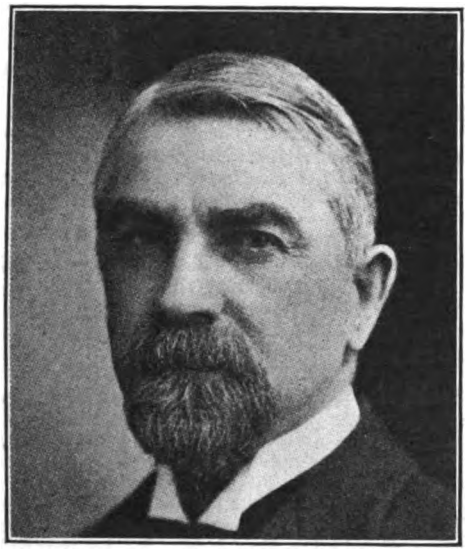
Ten Broeck Academy. He entered railway service in 1879 as a telegraph operator for the Ohio and Mississippi, and from 1883 to 1895 was a train despatcher on that road. He was then for nine years trainmaster of the Baltimore and Ohio Southwestern, and in December, 1903, left that road to go with the Terminal Railroad Association of St. Louis as assistant superintendent. He was superintendent of that Association from March, 1904, to November, 1905, and on the latter date became general superintendent, from which position he is now promoted to that of general manager, as above noted. Mr. Burlingame assumes part of the duties heretofore performed by President and General Manager W. S. McChesney, Jr., who relinquished the duties of general manager, and recommended the election of Mr. Burlingame to that position.

Obituary

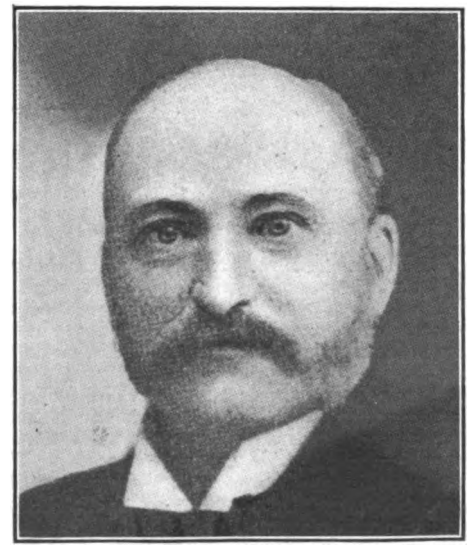


Horace G. Burt.

HORACE GREELEY BURT, for the past two years chief engineer of the Chicago Association of Commerce Committee on Smoke Abatement and Electrification of Railway Terminals, and formerly president of the Union Pacific, died at the Oak Park Hospital, Oak Park, Ill., May 19. Mr. Burt was born in January, 1849. He was graduated from the high school at Terre Haute, Ind., in 1867, and from the University of Michigan in 1873. He began railway work in March, 1868, as rodman on surveys and construction of the St. Louis, Vandalia and Terre Haute, and from December, 1869, to December, 1870, was engaged on location and construction of the Joy railroads in Kansas. He then attended the University of Michigan until February, 1873, when he went to the Milwaukee and Northern for one month. He was next employed in the engineering department of the Chicago and North Western from March, 1873, to the summer of 1881, at which time he was made superintendent of the Northern Iowa division. In December, 1883, he was transferred to the superintendency of the Iowa division, and in October, 1887, he was promoted to chief engineer. He became general manager of the Fremont, Elkhorn and Missouri Valley in November the following year, leaving in July, 1896, to go to the Chicago, St. Paul, Minneapolis and Omaha as general manager. Three months later Mr. Burt was elected third vice-president of the North Western in charge of traffic, retaining that position until January 1, 1898, whe he resigned to become president of the Union Pacific. After leaving the Union Pacific he took a trip around the world for his own recreation and instruction, leaving during the winter of 1904 and returning to Chicago in 1905. After returning from abroad he engaged in business as consulting engineer at Chicago, returning to active railway service again in January, 1909, when he was appointed receiver for the Chicago Great Western. In September of that year he once more took up private practice as consulting engineer at Chicago.

William Edward Davis.

WILLIAM EDWARD DAVIS, passenger traffic manager of the Grand Trunk and the Grand Trunk Pacific, with headquarters at Montreal, Que., died on May 15, at Vaudreuil, near Montreal. He was born on August 2, 1850, at Wilson, Niagara county, N. Y., and began railroad work in 1868, as a clerk on the Hannibal and St. Joseph, now a part of the Chicago, Burlington and Quincy. From 1873 to 1877, he was with the Kansas City, Fort Scott and Gulf, now a part of the Frisco system, and in August, 1877, he entered the service of what is now a part of the Grand Trunk system, then known as the Chicago and Lake Huron.



WILLIAM EDWARD DAVIS.

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This company afterwards passed to the control of the Grand Trunk and is now what is officially known as the Grand Trunk Western. He was subsequently to April 1, 1896, assistant general passenger and ticket agent of the same road at Montreal. On May 1, 1900, he was appointed passenger traffic manager of the entire system and at the time of his death was also passenger traffic manager of the Grand Trunk Pacific.

Jeremiah J. Coakley, superintendent of the Terminal Railroad Association of St. Louis, and the St. Louis Merchants' Bridge Terminal Railway, died in St. Louis, Mo., on April 21st, aged 54 years. He had been with the Terminal association for 35 years.

Maurice Dunnean, roadmaster of the Chicago, Rock Island & Pacific, at Goodland, Kan., was killed when a work train was wrecked near Colby, Kan., on May 1st.

William H. Frost, a pioneer railroad contractor who had part in the construction of the Boston & Maine R. R. and the Illinois Central R. R., died at his home in Independence, Kan., April 18th.

D. H. Gilman, a prominent organizer and builder of railroads in Washington and other western States, died April 28th, at Pasadena, Cal., aged 68 years.

J. C. McCabe, general freight agent of the Chicago, Rock Island & Gulf, with headquarters at Fort Worth, Texas, died in that city on May 3rd, aged 61 years. He began railway work in 1876 and had been connected with the Rock Island system since 1881, successively as traveling freight agent, commercial agent and second assistant freight agent of the Chicago, Rock Island & Pacific, general freight agent of the Chicago, Rock Island & Texas, and since December, 1903, general freight agent of the Chicago, Rock Island & Gulf.

F. H. Myers, division superintendent of the Chicago, Milwaukee & St. Paul Ry., at Minneapolis, Minn., died at his home in that city, April 8th, aged 38 years.

A. W. Quackenbush, formerly master mechanic of the Quincy, Omaha & Kansas City R. R., died in Kansas City, Mo., April 19th. Mr. Quackenbush was born at Paterson, N. J., February 1, 1845, and entered railway service in April, 1862. After holding various positions in the mechanical departments of other roads, principally in the east, Mr. Quackenbush was general master mechanic of the Wabash Western R. R. from January, 1887, to July, 1889; then and until December, 1892, superintendent of machinery of the Chicago & Alton R. R., and from July, 1892, to October, 1899, superintendent motive power and rolling stock, St. Louis, Cape Girardeau & Fort Smith Ry., at Cape Girardeau, Mo. From October 1, 1899, until his retirement, February, 1911, he was superintendent motive power and rolling stock of the Omaha, Kansas City and Eastern, Omaha & St. Louis, and Kansas City and Northern Connecting railroads, and later master mechanic of the Quincy, Omaha & Kansas City R. R. their successor.

Lieut.-Col. Wendell L. Simpson, U. S. A., retired, who has been the head of the purchasing department of the Panama R. R., at New York, for the last four years, died at his home in Garden City, Long Island, N. Y., April 23rd, aged 53 years.

Frank D. Tracy, real estate and tax agent of the Chicago & Alton R. R., died suddenly in Chicago, April 18th, aged 71 years. He had been in the service of the Chicago & Alton for forty years.

E. B. Wakeman, former superintendent of the Minneapolis Union Ry., from 1895 to 1904, died at his home in Holleywood, Cal., April 23rd. He was general superintendent of transportation of the Great Northern Ry. from 1892 to 1895.

John H. Weller, formerly superintendent of the Dayton & Michigan, now the Toledo Division of the Cincinnati, Hamilton & Dayton, died on April 22nd, at his home in Dayton, Ohio, at the age of 83.

Financial

Slackening in Business Activity.

ABOUT the best that can be said of the general business situation is that it might be worse. The tariff, the unrest of labor, and the continued condition of uneasiness in the money market make the general situation in the financial world uncertain. The result is seen in a slackening in business activity. The feeling in manufacturing circles is not optimistic although by no means dispairing. From a standpoint of new orders conditions are unsatisfactory. This is reflected in the heavy reduction in the Steel Corporation's unfilled tonnage in April. Incoming business is about 40 per cent below production. In the Middle West general business is still running at a high rate but there are many indications of a recession in activities. This is most notable in the steel industry where new orders have fallen off seriously. The railroads are also beginning to curtail their orders because of the difficulty in getting money. Western banks are making a persistent effort to contract loans which coincides with the condition of the business world to slow down, thus lessening the demand for money. In New England the business situation is decidedly unfavorable. The prospects in this section are for a long period of diminished industrial and commercial activity. The work of revising the tariff has been an extremely disturbing factor. A reflection of the attitude of New England towards the tariff is seen in heavy declines in the market value of mill stocks.

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The Stock Market.

THE stock market has reflected the prevailing uncertainty. It has continued, for the past month, in a dull and listless condition. Little change in tone has taken place and the transactions have been small with few wide fluctuations. Some of the leading railway stocks, however, have reached lower prices than for years. The New York Central, New York, New Haven and Hartford, Pennsylvania, Canadian Pacific and the Central Railroad of New Jersey are examples of this decline.

The situation is not destitute of favorable features, however. With the recession in business activity and the passing away of the European war cloud, money is certain to be much easier. It is also reasonably certain, as Major Henry L. Higginson states, that the "country cannot go on paying two prices for labor and getting but one price for its products. Business and labor reached a high point last year, and I believe there would have been a liquidation of labor then had not the country produced bountiful crops to postpone the readjustment. Business is now starting to slow down, and labor, I believe, will soon have to decide that half a loaf is better than none. The change will mean a return to more economical methods of living for all of us. We will not buy new clothes and will find that our old ones can be made to do much longer. The realization will be good for all of us. Good crops will help towards lower living expenses, and there will have to be a general readjustment there also to lower price levels."

The severity of the recession in business will be greatly modified, according to present prospects, by excellent harvests. It is altogether too soon to forecast beyond the wheat crop, but the outlook for this staple is extremely favorable. Winter wheat covers an area, approximately, 16 per cent above that harvested last season and the condition of the crop is the best since 1905. The estimated yield is 513,000,000 bushels. Abundance of rain has fallen throughout the spring wheat region and throughout the corn and cotton belt. The outlook at the present time for all crops, in so far as conditions can be forecasted, is exceptionally favorable.

The Bond Market.

THE investment market is still in a most unsatisfactory condition. During April the average price of twenty-five representative railroad bonds declined more than a point, this being the third consecutive month of the decline. The average price now stands at 85.6 as compared with 89.1 three months ago. The *Wall Street Journal,* which furnishes this compilation, states that not since 1906, when the figures were started, has there been as persistent decline in bonds as during the last three months. The average is now more than twelve points below the high level of 1906, and only a little more than three points above the low level of 1907. From the high level of 1909 a decline has been nearly nine points, five of which have been lost during the past year. The reason for this decline in high grade bonds is the radical change in the attitude of the investor. These first class railroad securities for many years have had the preference. Now an issue of St. Paul bonds, offered at a price to net over 4½ per cent, fails to be fully taken up. The security of these bonds is perfect, the only question concerned the interest return. The investor has been educated to 5 per cent and, moreover, at the present time, with uncertainty which everywhere prevails, he prefers a short term obligation.

Railway Financing.

THE adverse condition of the bond market is reflected in a reduced amount of financing. During April the total financing of American corporations was $118,500,000. This was less than the total for any previous month of the year and also below the corresponding month of the two previous years. During the first six months of both 1912 and 1911 there were more securities issued each month than in April of this year. In spite of the depressed condition of the securities market, however, and the reduced volume of financing, the amount of securities issued is small only by comparison.

The total financing so far this year amounts to $819,500,000, or $12,500,000 more than for the corresponding four months of last year, and nearly $2,000,000 above 1911. A feature of recent financing has been the prevalence of note issues. New York Central has sold $22,000,000 of one-year notes, paying 5 per cent; Lake Shore $10,000,000 of the same character. Since January $175,500,000 of notes have been issued as compared with $415,000,000 of bonds and $229,000,000 of stock. The decline in stock quotations indicates the profound distrust with which industrial preferred stocks are now regarded. From $125,000,000 in January the total has declined to $12,500,000 in April.

Consolidation Plan of the New York Central.

THE most important new financing announced has been the consolidation plan of the New York Central. This system has been living from hand to mouth for three years and the expediency of consolidating the debt is now apparent. Before a bond issue of sufficient size to take care of the requirements of the company can be floated on advantageous terms, however, the system must be unified by merging the Lake Shore and Michigan Southern and all its various possessions in railroad properties in New York State into the parent company. The aggregate bond issue contemplated will be $500,000,000 and the mortgage, it is understood, will contain the novel feature that above $500,000,000 bonds can be issued without limit up to 80 per cent of the cost of work done or property acquired and subject to its lien. It is proposed to give the holders of New York Central 3½ per cent Lake Shore collateral bonds par in 4 per cent bonds to be issued under the new mortgage which, in turn, will be subject to the New York Central first mortgage dated June 1, 1897, and also to the underlying mortgages upon the other railroads which have been consolidated or merged. The total amount of bonds to be issued under this new mortgage will not exceed $167,102,400. at present. In time, however, all the underlying mortgages will be merged into the large refunding mortgage.

The New York Central has financed its present requirements by a sale of $10,000,000 of five per cent notes at 99½ which were quickly sold by J. P. Morgan & Co. The cost to the New York Central was about 5¼ per cent. As stated

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above, the New York Central now has outstanding $70.000,000 of short term notes, not including $14,000,000 of temporary borrowing which is shortly to mature.

As was expected, after 21 years of dividend payment at the rate of 8 per cent per annum, the stock of the New Haven & Hartford has been placed on a 6 per cent basis. This will be fully covered by the earnings but no large surplus over the dividend requirements is to be expected. The company has suffered severely from the effect of the tariff agitation upon New England industries.

Railway Earnings for March.

THE "Wall Street Journal" for March, reports for 101 roads an increase of $8,850,411 in gross earnings or 4.18 per cent. Operating expenses increased so rapidly, however, that net earnings show a decrease of $4,970,795 or 9.4 per cent. The Reading Company reported for the nine months ended March 31st surplus earnings of $12,895,370. The increase over 1912 was over 55 per cent, and 1911 more than 10 per cent. The nine months' earnings equal 13.7 per cent on the common stock after a full year's appropriation for sinking fund and preferred dividend. For the year it is a safe estimate that Reading common will show 17 per cent earnings as compared with 6.8 per cent in 1912, 6.7 per cent in 1911, and 10.8 per cent in 1910. Figuring earnings before deducting additions and betterments shows an estimated return on Reading stock for 1913 of 20 per cent. When we consider that Reading is selling around 160, the possibilities of this stock from the standpoint of the investor seem to be extraordinary.

For March the Southern Railway made a gain in gross earnings of about $500,000 with an increase in net earnings, however, of less than $100,000. For the first nine months of the current fiscal year gross earnings gained over $4,000.000, but net increased only about $700,000. A large part of this increase in operating expenses, however, has been in the items of maintenance. Up to the end of March the outlays for maintenance were over $1,000,000 above those of the corresponding period of last year. The Southern's earnings are sufficient to pay the 5 per cent dividends on the $60,000,000 of preferred stock and show about 4 per cent earned on the $120,000,000 of common stock.

In the eight months ending February 28th, the Chicago, Burlington & Quincy showed a surplus, over interest and dividends, of over $11,000,000. Over 15 per cent was earned in this period on the stock. For the year ending June 30, 1912, the Burlington earned 12.7 per cent on the stock. The profitableness of their investment in Burlington stock to the Great Northern and Northern Pacific is seen in these figures. Burlington pays only 8 per cent dividends and could pay 10 without serious difficulty. The rapid increase in the efficiency of the Burlington is shown by the fact that whereas the ton mileage has almost exactly doubled, the train mileage has decreased over 8 per cent.

The St. Paul system in March, earned its fixed charges and dividends with a small balance. For the nine months ending March 31st last, the system earned 6.88 per cent on its outstanding capital stock. This is at the annual rate of 9.12 per cent. For the entire year it is a safe conclusion that the St. Paul will show about 8.¼ per cent earned on the common stock. This comfortable margin of surplus earnings over dividend requirements is made after allowing for $2,180,000 increase in maintenance expenses over the same period of a year ago. The outlook for the crops in the territory served by the St. Paul is very favorable and the lumber industry in Montana, Idaho and Washington promises an increasing amount of tonnage.

In spite of the decline in Illinois Central stock to $112 per share, a figure 4 points below the low point of 1907, the company is still earning at the rate of 7 per cent on its outstanding capital stock. There is no expectation that the semi-annual dividend which will be declared the latter part of June, will be at a lower rate than 3½ per cent. The company sustained some damage from the flood, not only to its property, but in a reduction of traffic. The Illinois Central has a large surplus, and it is not believed that the directors will cut the 7 per cent dividend unless conditions should grow much worse than at present.

The Pere Marquette earned a surplus over all charges in March which was the largest net earnings in over two years. During three months Receiver and General Manager Felton increased the operating income of the company by $890,000 on a revenue gain of $550,000. Until a good margin in surplus earnings has been arrived at, nothing will be done towards formulating a plan of reorganization. The value of good management to a railroad was never more strikingly illustrated.

Railway Business for March.

FOR the month of March the operating income per mile of line decreased 31.3 per cent for the railways of the east, increased 6.6 per cent for the railways of the south and increased 9.4 per cent for the railways of the west as compared with March, 1912. The average for the railways of the entire country decreased 9.9 per cent.

This operating income for the 222,086 miles of line summarized by the Bureau of Railway Economics from the reports of the railways to the Interstate Commerce Commission aggregated for the month $52.137,897, or $235 per mile of line, which is equivalent to $7.57 per mile of line per day. Operating income is that proportion of their receipts which remains available to the railways for rentals, interest on bonds, appropriations for betterments, improvements, new construction and for dividends.

The aggregate of the total operating revenues for the month was $241,048,818, an increase of $9,864,272 over March, 1912. The operating expenses were $178 234,167, or $14.104,236 more than for March, 1912. The net operating revenue was $62,814,651, or $4.239,964 less than for March, 1912. Taxes were $10.418,258, an increase of 7.7 per cent per mile of line over March, 1912, leaving the operating income 9.9 per cent less per mile of line as stated.

Receivership for the Frisco.

THE most important announcement in railroad finance was the statement that on May 27th, Benjamin L. Winchell, president of the St. Louis and San Francisco, and

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Thomas H. West, chairman of the Board of Directors of the St. Louis, Union Trust Company, were appointed receivers for the St. Louis and San Francisco by Judge Sanborn in the United States Court of Appeals in St. Louis. The receivership was asked for by representatives of $50,000,000 of bonds of the company. On complaint of the Railway Steel Spring Company, receivers for the Chicago and Illinois, were appointed in Chicago on the same day.

The receivers named for the Chicago & Illinois are William J. Jackson, vice-president of the road, and Edwin W. Winters, of New York. While this receivership is unfortunate, the resulting reorganization will probably place the property on a much sounder footing. The trouble with the St. Louis and San Francisco is an excess of bonded debt. It has $50,000,000 of stock, common and first and second preferred, but the common has never paid a dividend, and the second preferred has paid no dividends since 1906. The last report for the year ending June 30, 1912, showed a total net income of $12,992,510, and after deducting fixed charges, a deficit of $22,343. Operating revenues have been stationary for several years. The unfortunate situation of the company is the result of the purchase of properties at high prices which have not justified the expectation concerning them. Several of these companies have not earned fixed charges. This has been true of the St. Louis, Brownsville and Mexico, and the New Orleans, Texas and Mexico. The obligations assumed in connection with the acquisition of the Chicago and Eastern Illinois have also proven to be excessive. The St. Louis and San Francisco has a great variety of obligations outstanding, including 15 series of equipment trust notes. It has two issues of stock trust certificates and several note issues and two large bond issues secured by general and refunding mortgage. The reorganization will undoubtedly simplify this complicated financial structure, scale down the debt, substituting for the bonds preferred stock, or some obligation whose interest will depend upon earnings, and provide an ample bond reserve to take care of the future requirements of the property. The lines of the company are favorably located, some of them, however, in new territory whose development has not gone forward with the rapidity which was expected.

Operation

Progress of the "Safety First" Movement.

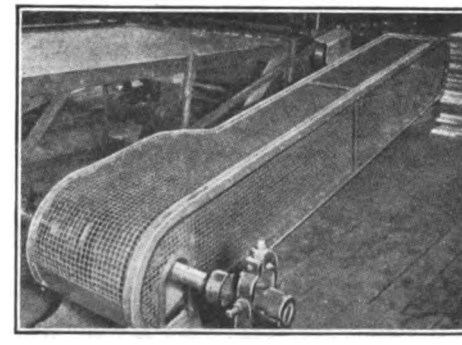
THE remarkable movement for the conservation of the life and limb of railway employes, which has become known in railway circles and by the public at large as the "Safety First" movement, steadily progresses. One of the most important developments recently noticed is the progress toward the standardization of this work in every way in which this can be profitably done. We reproduce herewith some illustrations showing in a concrete way the results of the policy of standardization. These photographs show the standard specifications for guards for wheels and other dangerous parts of the machines adopted by the New York Central System. It will be noticed that through the use of a wire gauze it is physically impossible for even the most careless workman to come into contact with any portion of the moving machinery.

Along with this effort to remove the possibilities of accidents equally rapid progress is being made toward more effective training of the men and the inculcation of the proper methods of work which will eliminate those causes of accidents which cannot be prevented through the use of safety appliances. The psychological portion of the "Safety First" campaign is in many ways most interesting because it is an attempt to solve a problem which is the most difficult of all of the problems which are involved in railway operation.

General Manager S. C. Long, of the Pennsylvania System has issued a booklet, which has been given wide circulation among employes, entitled "Why Railway Employes Should for Their Own Safety Demand the Maintenance of Discipline." Mr. Long emphasizes the point that the real secret of accident prevention is discipline. Discipline has been found necessary in connection with armies and every other large organization of men, and it should be enforced with equal rigidity and effectiveness on the great industrial armies.

Not only are efforts being made to teach railway men to avoid accidents, but a campaign has been started on a number of systems, as for example the Lehigh Valley, to eliminate the trespassing evil, which is responsible for a large proportion of railway injuries. The Chicago and North Western has started a campaign under the slogan "Save the School Children," which has for its object to impress upon children the danger in trespassing upon railroad property. A pamphlet has been published by Mr. Ralph C. Richards, chairman of the Central Safety Committee, a large number of which has been distributed by this company to school principals and others who can render effective work in this campaign.

A novel feature in the safety work of the month was evolved by Mr. E. L. Tinker, head of the Safety Bureau of the El Paso Southwestern Railroad, who has devised "Safety First" bands for cigars and cigarettes. Such cigars and cigarettes have been placed on sale in a large number of stores in the territory served by this system,



DYNAMO GUARDED BY WOVEN WIRE, ACCORDING TO STANDARD SPECIFICATIONS.

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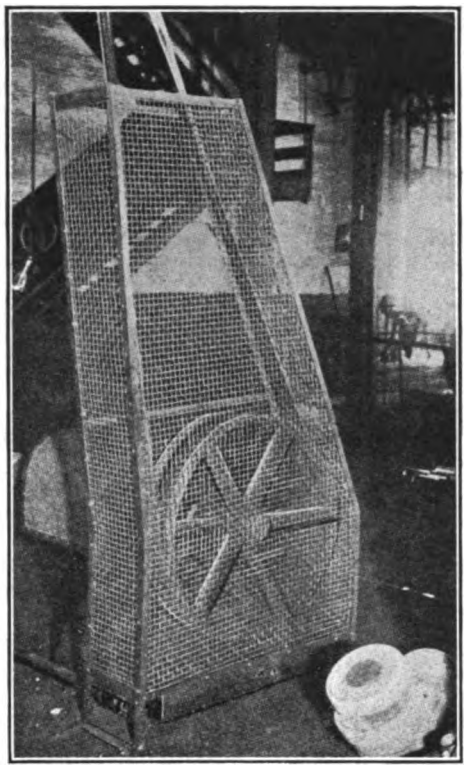

FLY WHEEL AND BELT GUARDED BY WOVEN WIRE ACCORDING TO STANDARD SPECIFICATIONS.

and are reported to be quite popular. The same corporation is arranging to have films designed to give instruction in safety to be shown in moving picture establishments in the towns which it serves.

A most impressive fact in connection with the experience of this company was brought out at the recent meeting of the "Safety First" managers of the various railroads in Chicago. The El Paso and Southwestern Railroad recently completed the construction of a line to Tucson, Arizona. This work occupied a period of twelve months, during which time about twelve hundred men were employed. Through the co-operation of the local authorities no saloon was allowed to establish itself along the line of construction, a distance of 65 miles. The result was that drunkenness was practically unknown, and not a single man was killed on the work, although there was a large amount of rock cutting where high explosives had to be handled

We commented in our May issue upon the very important meeting of the "Safety First" officials of thirty-four railroads at Chicago. As a result of this meeting an organization known as the "National Railway Safety First Association" was created, the original members of which were made up of the companies these represented. This organization is to begin a campaign of education with a view to reducing accidents on railroads. Bureaus of information are to be established in several large cities, where lectures on railway safety will be delivered. The chairman of the Association is Mr. A. W. Smallen, who is also chairman of the General Safety Department of the St. Paul System.

The Chicago and North Western Railway Company has issued an order to all crossing flagmen and watchmen to report the license number of automobiles driven recklessly across railway crossings, to the superintendents of their respective division . Section foremen, agents and roadmasters are instructed to check the work of crossing watchmen as regards this matter and see that they report all reckless chauffeurs or automobile drivers and in fact anyone who crosses a railroad in a careless or reckless manner. It is the intention of the company to follow up all of these reports and to endeavor, in so far as possible, to eliminate such practices, which are responsible for a large majority of accidents at crossings.

An interesting feature in the development of the safety movement has been the use of the instruction cars formerly provided by railroads for the purpose of training men in the handling of equipment, such as air brakes, etc. The Lehigh Valley announces that its traveling instruction cars are to be a permanent institution, and they are to make trips over every part of the system at regular intervals for the purpose of refreshing the memory of the men on those things concerning which they are likely to become hazy or careless. The Wabash Enginemen School of Instruction is also doing similar work—in fact every company has placed particular emphasis in its technical instruction upon the matter of safety.

Signal Developments During the Month.

CONSIDERABLE concern is beginning to be apparent concerning the prospect of the passage of the bill introduced by Congressman Mann, of Illinois, requiring the installation of automatic stop signals on every mile of track within the country. While it is improbable that anything will be done with this bill at the present session of Congress, yet it is reported from numerous quarters that there is very strong sentiment in support of the measure. To anyone familiar with the present status of automatic train stops as a mechanical proposition such a movement seems absurd. There are about 200 patent automatic stops at the present time, of which less than half a dozen—as is evidenced by the careful investigation of the New Haven System—have any merit. The railroad companies are busily engaged in testing out and endeavoring to perfect such of these devices as possess merit, and until one or more devices have been thoroughly tried under all conditions and perfected to the point where they give satisfactory service, it is folly for Congress to force the railroads to take this momentous step. The adoption of such a signal system would require a staggering expenditure which is not warranted until the efficacy of the automatic train stop has been proven beyond doubt.

Two railroad systems—the Lehigh Valley and the Lehigh and New Enpland—have announced within the past month that they will complete the installation of telephones to replace the telegraph in train dispatching. The Lehigh Valley announced that beginning May 15th the telephone dispatching system will displace the telegraph for train movements. Every freight, passenger train, work train and every section gang is to be supplied with a portable telephone set, which by means of a pole can be connected with the over-

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head wires strung on poles on the right of way. In this way it is possible for any train crew or section gang to get into immediate communication with the nearest dispatcher and to either report trouble or any fact which should be promptly communicated to their superiors. In the case of wrecks it is possible to get word of the disaster to headquarters in a much shorter space of time, which frequently is of the greatest importance where persons have been seriously injured. In addition, more than 150 so-called siding telephones have been placed in cement booths and freight houses. The booths are equipped with a shelf, the necessary order blanks and a metal box in which to deposit copies of train orders received. The siding telephones are placed at points where, under former conditions telegraph operators were not employed, and where trains were delayed for lack of information.

The Lehigh and New England Railroad Company expects to have its telephone installation completed by June 1st, at which time the telegraph will be superseded. This company has used the telephones heretofore to considerable extent in connection with small branches where it did not pay to maintain telegraph operators.

Under a new law recently enacted in the state of New York, which is now effective, the railroads are required to give two full days of vacation with pay every month to their tower and signal men. The law is in the form of an amendment to the labor law, and provides that any person employed in the capacity of a tower or signal operator, or in any capacity in signal towers, or in connection with signal work, and who works eight hours out of the twenty-four every day in the week, must be given at least two full days of vacation a month without loss of compensation. It is not believed that any considerable number of additional relief men will be necessary.

The Inadequacy of Compensation to Railways for Handling Mail.

WE reproduce herewith two most instructive and valuable charts, which were submitted by Mr. W. A. Worthington, vice-president of the Southern Pacific, at a hearing before the Congressional Committee on Postage on Second Class Mail Matter and Compensation for the Transportation of Mail, held in Washington on March 27th. These charts were presented incidentally in the presentation of a statement (on behalf of the Southern Pacific Company) concerning the adequacy of compen-

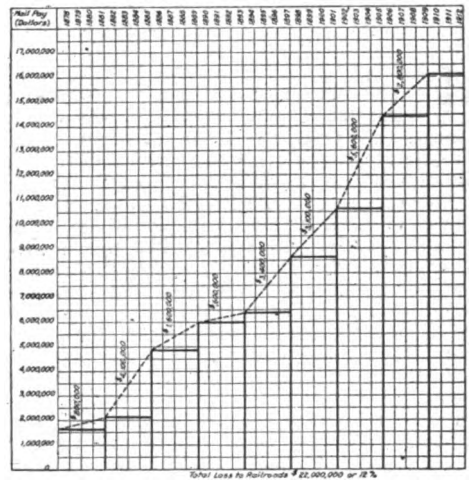
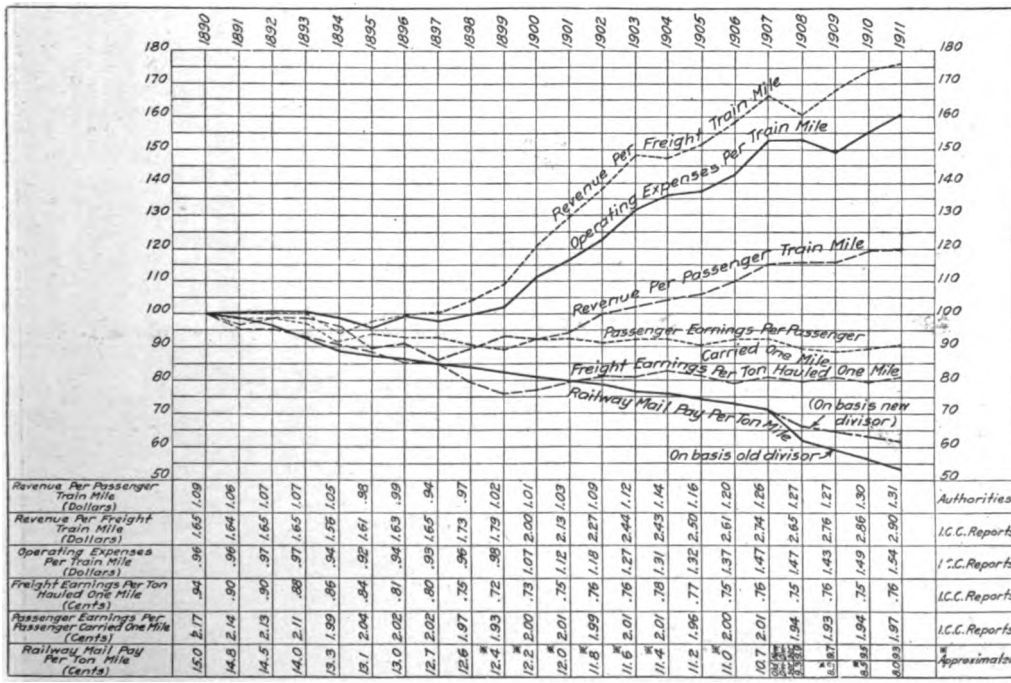


Diagram Showing Loss in Mail Revenue to Railroads by Weighing Mail Quadrennially Instead of Annually in I. C. C. Groups 7, 8, 9 and 10.*


1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911
Revenue Per Freight Train Mile
Operating Expenses Per Train Mile
Revenue Per Passenger Train Mile
Passenger Earnings Per Passenger Carried One Mile
Freight Earnings Per Ton Hauled One Mile
Railway Mail Pay Per Ton Mile
(On basis new divisor)
On basis old divisor
Revenue Per Passenger Train Mile (Dollars) 1.09 1.06 1.06 1.07 1.07 1.05 1.05 .98 .99 .94 .97 1.02 1.01 1.03 1.09 1.12 1.18 1.27 1.20 1.16 1.26 1.27 1.27 1.30 1.31 Authorities
Revenue Per Freight Train Mile (Dollars) 1.65 1.64 1.65 1.65 1.65 1.56 1.61 1.61 1.63 1.65 1.73 1.79 2.00 2.13 2.27 2.44 2.43 2.50 2.61 2.74 2.65 2.76 2.86 2.90 I.C.C. Reports
Operating Expenses Per Train Mile (Dollars) .96 .96 .97 .97 .97 .94 .92 .94 .94 .99 .96 .98 1.07 1.12 1.18 1.27 1.31 1.32 1.37 1.47 1.47 1.43 1.49 1.54 I.C.C. Reports
Freight Earnings Per Ton Hauled One Mile (Cents) .94 .90 .90 .88 .86 .84 .84 .81 .80 .75 .72 .73 .76 .76 .78 .77 .75 .76 .75 .76 .75 .76 .75 .76 I.C.C. Reports
Passenger Earnings Per Passenger Carried One Mile (Cents) 2.17 2.14 2.13 2.11 1.99 2.04 2.02 2.02 1.97 1.93 2.00 2.01 1.99 2.01 2.01 1.96 2.00 1.97 1.94 1.93 1.94 1.97 I.C.C. Reports
Railway Mail Pay Per Ton Mile (Cents) 15.0 14.8 14.5 14.0 13.3 13.1 13.0 12.7 12.6 12.4* 12.2 12.0* 11.8 11.6* 11.4 11.2 11.0* 10.7 10.4 9.97 9.56* 9.03 *Approximated

RELATIVE REVENUE PER UNIT OF TRAFFIC FOR MAILS, PASSENGERS, AND FREIGHT FOR ALL RAILROADS; YEAR 1890 TAKEN AS 100.

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sation. Mr. Worthington points out that while the railroads received 34 per cent of the total postal receipts in 1901, in 1911 the proportion so received had declined to 10 per cent. Judged from another standpoint, and using as a basis of comparison 1,000 passenger train miles run on the railways of the country, there was a decrease from 1900 to 1911 of 14 per cent in the mail revenue as compared with the increase of 31 per cent in revenue from passenger, and 61 per cent in revenue from express traffic. During the same time the railway operating expenses for 1,000 train miles were increased 44 per cent. A study of Mr. Worthington's chart will be of value to any railway man.

Efficiency in Railway Shops.

MR. HARRINGTON EMERSON, who is well known to railway men in connection with his studies in scientific management, has contributed a most interesting article to the May issue of the *Engineering Magazine*, concerning the technical efficiency of the shops of the Pittsburgh and Lake Erie Railroad. Mr. Emerson has unstinted praise for the shops of this company, particularly for its blacksmith shops. He points out that while the ordinary blacksmith shop is dirty, dark and uninviting, yet through the careful design and equipment of its shop the Pittsburgh and Lake Erie have been able to overcome all of these defects. The accompanying illustration shows the method by which this was accomplished.

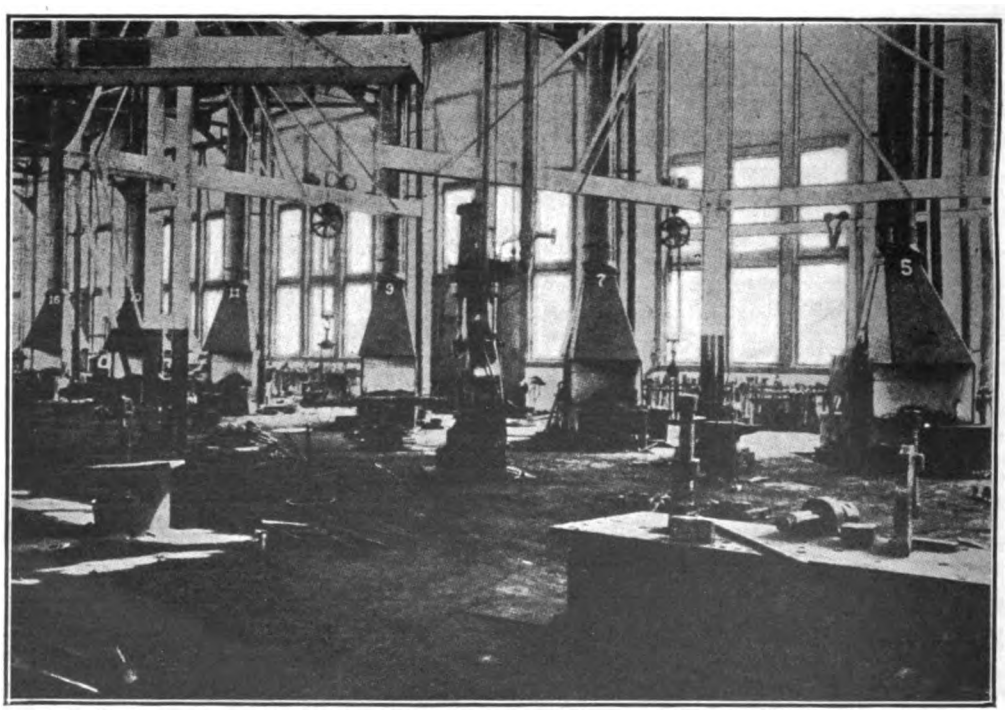
In connection with his discussion of shop practices he brings out considerable interesting information. He states that this company has found that cleaning steel cars, preparatory to painting, with a sand blast is not as economical as hand work. Four men clean eight cars a day, the average wage being $2.20, which makes the cost per car with hand work of $1.10 as compared with about $5.20 per car for sand blast cleaning. The cars are painted at the rate of 20 per day with an air brush, which uses less paint and saves the expense of brushes, as compared with hand painting. Much attention has been given to developing standards of paint and in varying the practices of applying it under different weather conditions.

Report on Revision of M. C. B. Rules of Interchange.

THE Standing Committe on the revision of M. C. B. rules of interchange of the Railway Club of Pittsburgh presented its annual report at the meeting of that organization, held March 28th last. This committee has for some time been canvassing the members of the Club for recommendations and suggestions which might profitably be investigated and reported thereon to the Master Car Builders' Association. A similar committee of each of the other Railway Clubs is likewise engaged in such investigation.

The suggestion made by the Jamison Coal and Coke Company that the addition of 10 per cent to the total bill for repairs is an excessive charge and should be eliminated was disapproved by the committee on the ground that the cost of making repairs under the existing schedules, and including the 10 per cent charge, was no greater than the actual expenditure to which the railroads were put for such work.

In response to the invitation of the Arbitration Committee of the M. C. B. Association, the Railway Club of Pittsburgh appointed three representatives who, together with a like number from each of the other Railway Clubs, will gather to-



GENERAL VIEW OF THE "WHITE BLACKSMITH SHOP" OF THE PITTSBURGH AND LAKE ERIE RAILROAD

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gether at some convenient point to discuss the suggestions for changes in the rules. The recommendations for changes made by the committee apply to some forty-seven rules covering a wide range of subjects. None of these suggestions are of a revolutionary character, the majority of them dealing with a clarification of the language or the covering of points which in practice have found to be unprovided for in the existing rules. The most important changes proposed are those relating to compensation for damage to cars with wooden underframes as regards which the committee proposes an entire reconstruction of the rules. Changes are also proposed in the rules concerning composition wood and metal underframes and all steel or all steel underframe cars, as regards the loss. The committee reports that the existing rules cannot be consistently applied, and are, therefore, unsatisfactory. The changes proposed make the handling road responsible for all repairs necessitated by unfair usage, derailment or accident to all steel or all steel underframe cars. The car owner is held responsible for repairs due to ordinary wear and tear, corrosion and weak construction.

It is further proposed that where the damage to cars exceeds a stipulated amount, and where the car owners have decided to tear down the injured equipment instead of repairing it, intending to replace it with more modern equipment, that the car owners shall have the right to bill the responsible company for the damage done, irrespective of whether it intends to reconstruct the car.

With reference to the cars found unsafe on account of general decrepitude, due to age, decay or corrosion, the committee proposes that the fact shall be reported to the owner, who shall have the right to elect to have it sent home. If he decides to have it returned, he shall furnish *four home cards* noting upon them existing defects When the cars are returned they are to be sent over the shortest route. The car owners are to be responsible for temporary or partial repairs necessary to enable them to be moved safely. Of the four cards furnished, one is to be retained by the forwarding road, one for manifesting purposes, and the other two to be attached, one to each side of the car.

Report of the Interstate Commerce Commission on Block Signals.

IN the May issue of the RAILWAY WORLD a brief summary of the advance report of the Interstate Commerce Commission's annual report as of January 1st, 1913, on "Block Signals on the Railroads of the United States," was given. The complete report is now available and consists almost entirely of statistical tables covering the usual range. In brief, the Commission finds that on the railroads of the country there has been, during the calendar year 1912, an increase of 1,883 miles in the miles of road covered by automatic block signal miles while in the same period there has been a net increase of 5,656 miles of road controlled by manual signals. This gives a total net increase in the mileage on which block signals of one character or another are installed of 7,540 miles as contrasted with an increase of 5,140 miles in the preceding year. Discrepancies are manifest in the reports of a considerable number of companies, and any comparison must be approximate in the absence of explanations of these various matters.

The Missouri-Pacific alone reports an addition of 4,445 miles to its block signaled lines, representing considerably over half of the total increase during the year. Concerning the proposed new signal work during the year 1913, the larger installations in point of mileage are as follows:

Pacific System, 463 miles; Pennsylvania System, 366 miles. (Most of which, it is inferred, is the improvement or replacement of existing installation); Northern Pacific, 366 miles; Erie, 307 miles; Atchison System, 300 miles; Wabash, 244 miles; Illinois Central, 215 miles; Northern Pacific, 175 miles; Missouri, Kansas and Texas, 105 miles. A considerable number of other companies have in contemplation signal installations of a total length of 100 miles or less.

An interesting feature of the contemplated work is the proposed installation by the Pennsylvania of 19.3 miles of track equipment for the use of automatic train stops; the Washington Water Power Company also proposes to so equip 22.5 miles of single track.

Physical Development of the Pennsylvania System in 1912.

IT is possible, with the issuing of the Annual Record of Transportation Lines of the Pennsylvania System, to secure an accurate picture of the growth and development of this great system during the year 1912. Since 1902 the mileage of the Pennsylvania system has increased only 1,088 miles, while the increase in second, third and fourth track mileage has been respectively 1,335, 277 and 224 miles. As contrasted with this increase in the main track mileage, the mileage of "company sidings" has been increased from 5,916 to 8,965 miles, or a net growth of 3,049 miles. This growth in the mileage of sidings indicates graphically the increased volume of business of the system which has made this additional trackage necessary.

Another interesting fact brought out in connection with this annual compilation is that the system now has something over 100,000 shareholders, or on the average nearly four for every mile of trackage. During the year there were approximately eight employes for every mile of track. The total amount paid out for wages was $188,749,312.

New Egg Inspection Rules.

NEW rules concerning the shipment of eggs, and the inspection of consignments for damage thereto have been agreed upon by a committee of dealers from the Merchants' Exchange of New York City and the railroads centering into that point. The new regulations are effective May 15th. The rules provide, in brief, that all shipments of eggs shall be subject to inspection by inspectors of the Trunk Line Association: that no examination of cases shall be permitted except those showing external evidence of damage, and where no external evidence of damage is present, the consignees will be required to take delivery and give receipt for the entire quantity in good order; where external evidence of damage exists, the consignee is to have the right of making an examination previous to giving a receipt for the shipment; when shipments are delivered to a storage warehouse an allowance of not more than 10 cents per

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case is to be made for repairing cases which show external evidence of damage. In no case is an inspection to be expected by a carrier's representative after the consignees have taken delivery. Where consignment in whole or in part is refused by the consignee because of evidence of damage it shall be sold by the carrier and the net proceeds remitted to the owner or consignee. When such remittance has been made no further claim will be entertained concerning the refused shipment. The basis for the adjustment of claims will be in accordance with Section 3 of the uniform bill of lading, i. e., bonafide invoice price at the place and time of shipment. If there is no invoice, settlement will be based on market value at destination on date of shipment was due to arrive, less freight, cartage and commission.

When shipments are loaded by shippers (bills of lading bearing notation "S. L. & C."), and check short at destination, any claims thereon will be declined when cars arrive under original car seals.

When shipments are loaded by shippers (bills of lading not bearing notation, "S. L. & C.") and check short at destination, any claims thereon will be declined when cars arrive under original car seals. In the settlement of claims for cracked eggs, the allowance therefor will be based upon the difference between the current price for cracked eggs in the same current price of sound eggs in the same shipment.

In the settlement of claims for stained or wet eggs, the allowance therefor will be based upon the difference between the current price of stained or wet eggs and the current price of sound eggs in the same shipment. During the period when no quotations are available on stained or wet eggs, the basis for settlement will be determined by current market conditions.

Baltimore and Ohio to Pay Semi-Monthly.

ON June 1st the Baltimore and Ohio will begin the policy of making semi-monthly payments of wages to its working force. The Auditing and Treasury Departments of the company have for some time been at work on the details involved in the change. The reason for the change in system, which will involve a considerable expense, is the passage of laws in the states of Indiana, Ohio and Pennsylvania requiring bi-monthly payments. In view of the large amount of territory affected by these laws, the company decided to extend the same policy to the state of Maryland and elsewhere where legally such a course was not obligatory.

It is contended that this change will affect a material saving to the employes of the company in that they will be able to pay cash to a greater extent than heretofore, and hence secure better prices. Against this advantage is the heavy increase in the cost of handling the pay roll to the company, this being an example of the sort of legislation which has brought about conditions requiring the railroads to once again apply to the Interstate Commerce Commission for permission to raise rates.

PRESIDENT PETERS, of the Long Island Railroad Company, has announced that June first the Adams Express Company will take over the plant and service of the Long Island Express Company. The reason for the change, according to the official statement, is that the Adams Express Company "will be in better position to make through rates and to perform through service than has been possible under the operation by the railroad company of its own express service." The Adams Express Company will take over all of the equipment of the Long Island Express Company as well as its organization and operating staff.

Terminal Improvements in Canton.

THE Canton Railroad, controlled by the Canton Company, is about to place in service a group of commodious warehouses which, in connection with its terminal road, will greatly facilitate the interchange of freight, eliminating much useless switching into and out of that city. The Canton Railroad Company will receive freight at its warehouse consigned over the Baltimore and Ohio, the Pennsylvania or the Western Maryland systems, and will switch it to the lines of the designated companies without charge. This will serve as a belt line through the business district of the city, and besides eliminating switching charges, will greatly facilitate the speed of freight movement.

Federal Report on Air Brake Tests.

CHIEF Inspector of Safety Appliances Belnap has presented to the Interstate Commerce Commission his report concerning the work done under his direction in the inspection and testing of air brakes during the calendar year 1912. His computations show that the number of observed defects as regards air brake appliances on freight and passenger cars and locomotives was 73.45 per thousand inspected. He states that: "Our inspectors have frequently made terminal tests which disclosed the fact that the proportion of operative air brakes on trains about to leave their terminals was less than the percentage required by law. Had these trains, in fact left their terminals in that condition our inspectors, in the performance of their duty would have been compelled to file evidence of such violations of the law for prosecution. However, the train crews being present at the time such inspections were made, and realizing the imminent danger to themselves and to opposing trains, the matter was promptly reported to the official in charge, by whom the necessary repairs were ordered.

"The stenciling of cars 'United States Safey Appliances' and 'United States Safety Appliances, Standard,' seems to have confused many employes of the railroads. The Master Car Builders' Association, at its annual convention in 1911, adopted a rule requiring carriers to mark all cars which have been brought into the condition permitted under the extension order as well as those which comply absolutely with the order prescribing the standards. The significance of the markings is that when a car is marked 'United States Safety Appliances, Standard,' the car complies absolutely with the order of March 13, 1911."

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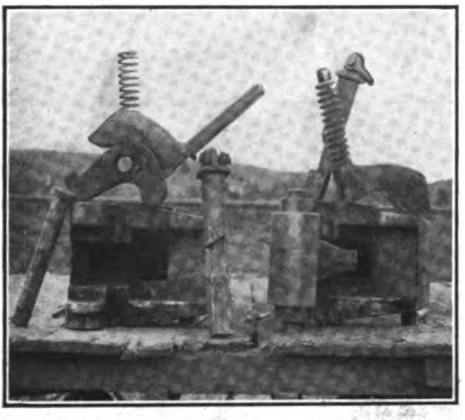
Mechanical

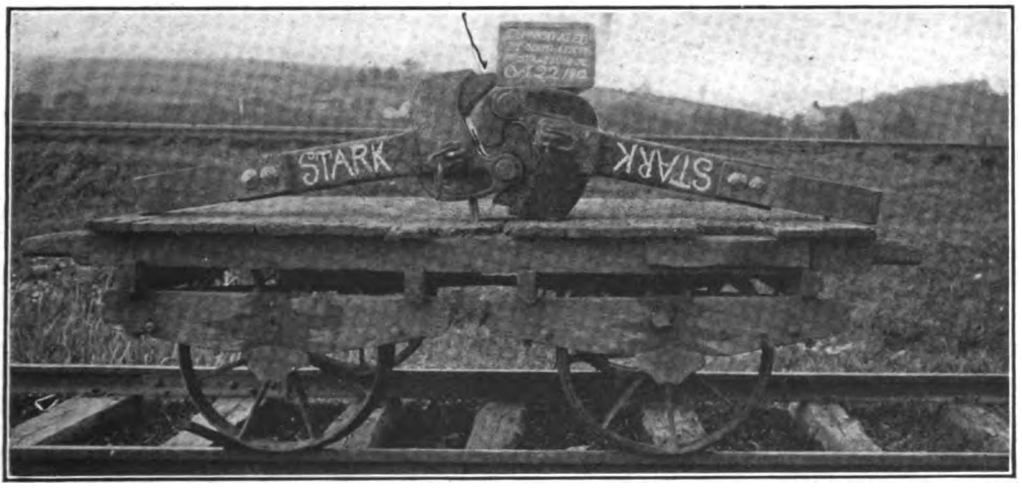
A NEW CAR COUPLER

WE present herewith two photographs of a new car coupler which has been successfully tested on the Southern Railway, and which is causing considerable interest among mechanical and operating officials. The device is manufactured by the Stark Car Coupler Company, Strasburg, Virginia.

The novelty of the coupler rests in the fact that the guard arm is held in position by a steel spiral spring somewhat on the principle of a door latch, that lets the knuckles pass over. When they are in position, all the responsibility is off the spring and the knuckles, to be raised again, must be relieved by raising the locking pin. It is asserted that the coupler is strictly automatic and that it does not matter in what positions the knuckles are, as they will always couple without their manipulation by hand. The spring referred to moves the guard arm, keeping it in position, and the tests so far made appear to indicate that it cannot be broken in its housing. In fact, these tests have proved it to be the strongest part of the coupler. It is asserted that there is no degree of curve that an engine cannot be operated on which will not permit easy and automatic coupling by means of this device.



VARIOUS PARTS OF THE STARK CAR COUPLER.



THE STARK CAR COUPLER.

Referring to tests made on the Southern Railway tracks at Strasburg Junction, the Strasburg *News* has in part the following to say:

"The special train furnished by the Southern Railway and composed of an engine, a coach, and two box cars carried a number of the witnesses to the Junction. The first tests were made on the east leg of the Y, a track of about twenty degree curve. The embankments on both sides of the track were crowded with spectators, the greater part of whom had never seen the new device in operation. The first trial was made with both knuckles closed, the second with one closed, and the third with both open. Each time the knuckles locked perfectly, which is rather remarkable when one considers the fact that it is very hard to lock the present couplers at all on a curve of such a degree. Tests were made over and over again in every way imaginable, with heavy compact, with comparatively no jar at all, with the couplers placed out of line as far as they could be drawn and each time there was not a hitch, a perfect coupling was made.

"Similar tests were then made on tracks of lesser degree curve with similar results. The two great features of the Stark Car Coupler revealed by the demonstrations are these: It will couple on a greater degree curve than any engine can be run without any adjustment, and secondly it will couple automatically, thus preventing the loss of hundreds of hands and feet of trainmen."

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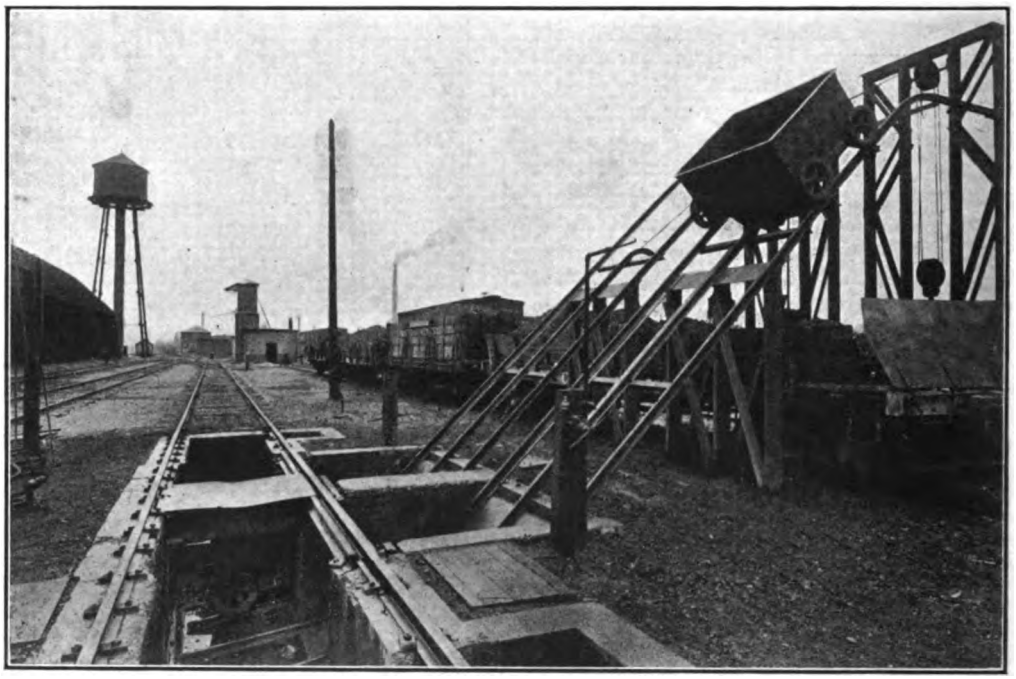
AN EFFICIENT CINDER CONVEYOR

THE accompanying illustration indicates the design and construction of an interesting cinder pit machine which transfers the cinders from the pits to adjacent cars. It is employed as an economical and rapid method of transference and increases and improves the service of the cinder pits. As noted the cinders are hauled up in the conveyor car and automatically unloaded into the waiting cars. The operation is by compressed air from the round house reservoir, at isolated terminals, by air from the locomotive. It may also be operated by electricity or steam. It obviates the necessity for shoveling or the construction of large storage pits.



CINDER CONVEYOR TRANSFERRING CINDERS FROM LOCOMOTIVE PIT TO CARS.

A NOVEL UNLOADING MACHINE FOR VESSELS

THE transportation of iron ore and coal on the ocean has been a serious problem, owing to the meager facilities for unloading and the impracticability of installing machinery for unloading vessels similar to that on the Great Lakes, on account of the immense investment for special docks and equipment which could be used only intermittently.

In order to overcome this difficulty, special freight steamers have been built with bins and cranes, and many others of different types, all being expensive in first cost, operation and maintenance, although they are improvements over the old methods which still obtain in some parts of the world.

Notwithstanding the great amount of ingenuity which has been expended and the many inventions along this line, the problem still seems to be a live one as indicated in a Consular Trade report on the subject, which says: "With the decreasing dependence which can be placed upon European sources of supply, it is beginning to be seen that the future reliance of Continental nations with deficient home supplies of coal must be upon the great deposits of North America. The question of importing American coal to France has been repeatedly raised, but has always encountered the difficulty of adequate return freights for coal-carrying vessels. Coal has such weight and bulk in relation to value that it has been hitherto found impracticable to export it profitably to France at current prices by vessels which would be obliged to make the return trip in ballast.

"The time has now apparently come when the great coal mining and shipping companies of the United States should take up this subject seriously and decide whether a special class of ocean-going steam barges of large tonnage, moderate speed, and built like the ore-carrying craft of the Great Lakes, to secure every economy in crew and equipment, might not solve the problem of transportation, and open to our exporters the rich and permanent market in France, which, with due enterprise and effort they will surely obtain."

To meet the requirements and conditions thus briefly referred to a new vessel unloading machine of the Kindl type has recently been designed at Pittsburgh, as shown in the following illustration. This machine may be compared to a steam shovel, operated by electricity, placed upon a crane-girder and carried by a vessel, or it may

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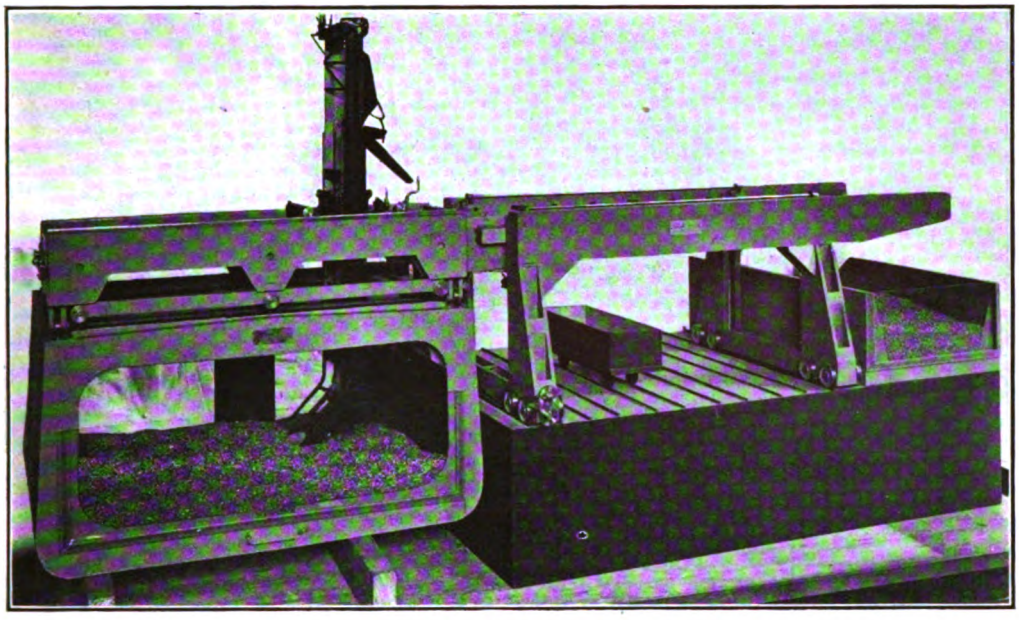

MODEL OF UNLOADING MACHINE SHOWING METHOD OF OPERATION.

be transferred to a bridge on the dock. The bucket is of such construction that it can be used for ore, sand, coal or limestone. The filling of the bucket being a shoveling action under the control of the operator, it is necessarily less degrading to coal than the well known action of the grab-bucket. It will discharge to cars or to a stock pile and successfully transfer the material from stock to cars or vessels, without auxiliary hoisting devices.

The weight of the machine and crane-girder, as designed to be carried by a vessel, is approximately 50 tons, which is a very small dead weight when compared with the weight of steel for bins and cranes on the European ore and fuel vessels and the special construction and machinery for recent colliers in this and other countries. It has a discharging capacity to meet any reasonable demand and a floating coal storage can be equipped with this machine to bunker coal for steamers. The loose bucket, of five yards capacity, weighs approximately two tons, and makes two trips a minute. Each machine requires not more than two men to operate.

A MODERN LOCOMOTIVE AUTOMATIC CONTROL

THE accompanying illustration shows a modern Mallet locomotive of the New York Central Railroad equipped wth the automatic control equipment of the New York Air Brake type developed at Watertown, N. Y. This equipment furnishes the advantages of the combined automatic and straight air brake, with additional features. The apparatus is the same for all locomotives and can therefore be applied to passenger engines hauling either high speed trains or ordinary passenger trains, and to locomotives in freight or switching service, or for double pressure control operation, the automatic control equipment being identical in all cases and simply adjusted for the character of service. The locomotive and train brakes can be used together, or the locomotive brakes separately, as desired, and it makes no difference in what part of the train the locomotive is located. The brakes can be applied as lightly or as heavily as desired, and the brake pressure so obtained will be automatically maintained in the locomotive brake cylinders, in spite of leakage or variation of piston travel. The locomotive brakes can be graduated on and off as desired thus enabling better stops to be made, and assuring smooth handling of trains.

One important feature of the automatic and straight air brake is part of the automatic control equipment, viz., maintaining the automatic and straight air brakes as two separate units, so that their operation can be independent of one another. In case either the automatic or straight air brake should become inoperative, the defective brake will therefore not interfere with the proper operation of the other brake.

When not in use, the handle of automatic brake valve is kept in running position, and the handle of straight air brake valve in the release position. For service application the handle of the automatic brake valve is moved to the service position until the required reduction is made, then back to lap position which is the position used to keep brakes applied. In order to release the train brakes the handle of the automatic brake valve is moved to the release position and held there until all triple valves are released. If the locomotive brakes are to be released at once, the running position is used, but if they are to be held on for a time, movement is made to the holding position, and then graduated off as desired, by short movements between running and holding positions.

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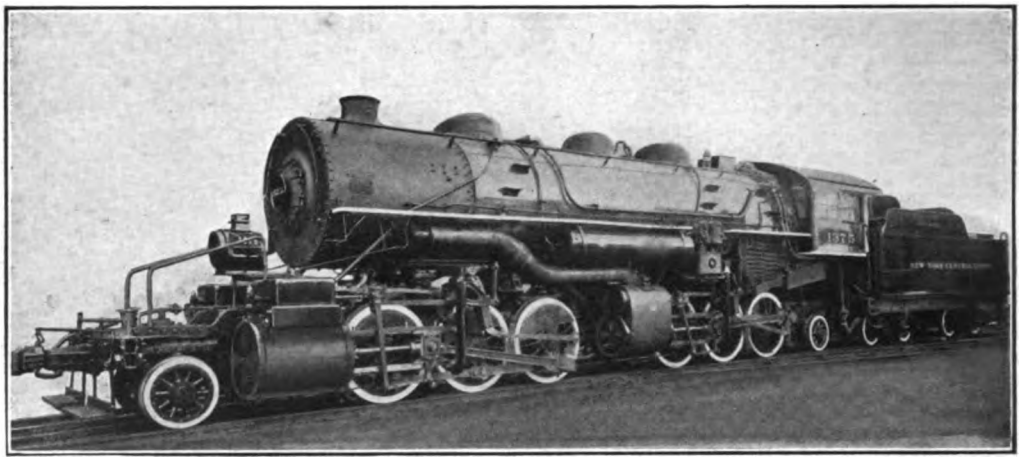
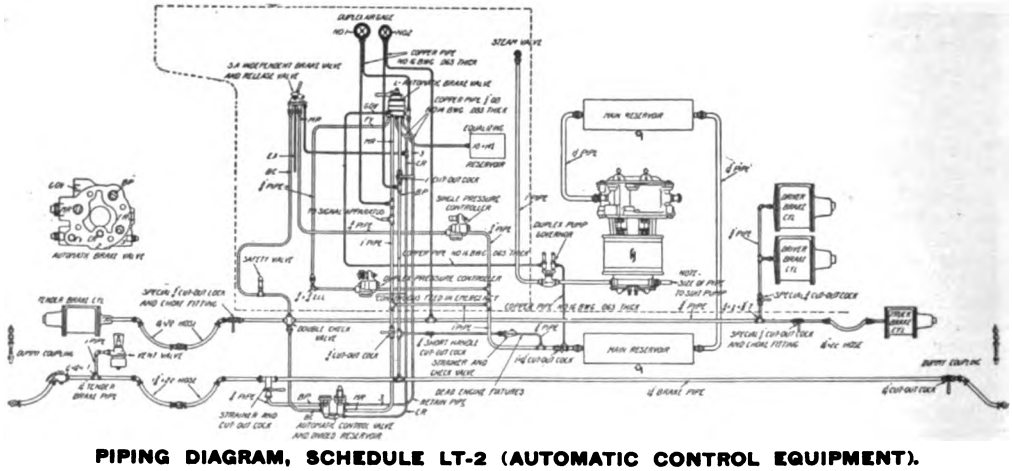


MODERN MALLET LOCOMOTIVE OF THE NEW YORK CENTRAL EQUIPPED WITH AUTOMATIC CONTROL EQUIPMENT.

The piping arrangements are simple connecting the control reservoir of the automatic control valve, to the automatic brake valve and to the independent locomotive automatic release portion of the straight air brake valve. The brake pipe connects the automatic brake valve to the automatic control valve and all triple valves and the brake cylinder pipe connects the automatic control valve to the driver, tender and truck brake cylinders, through the double check valve while the discharge pipe connects the air pump to first main reservoir. The automatic control valve release pipe connects the control reservoir exhaust port of the automatic control valve to the automatic brake valve and the equalizing pipe connects the two main reservoirs while an excess pressure governor pipe connects the feed valve pipe to the excess-pressure head of pump governor. A feed valve pipe leads from feed to the automatic brake valve and the main reservoir pipe leads from the second main reservoir to pump governor, reducing valve, feed valve, automatic control valve and automatic brake valve. There is a reducing valve pipe which connects the reducing valve to straight air brake valve; also to the signal system when desired, while the straight air pipe leads from straight air brake valve to the double check valve.



PIPING DIAGRAM, SCHEDULE LT-2 (AUTOMATIC CONTROL EQUIPMENT).

CONVENTION OF MASTER BOILERMAKERS' ASSOCIATION

THE seventh annual convention of the Master Boilermakers' Association was held at the Hotel Sherman, Chicago, on May 26th to 29th inclusive. In addition to the regular routine work the convention listened to and discussed a number of interesting and valuable reports prepared by its standing and special committees.

When Is a Boiler in a Weak and Unsafe Condition?

IN answering the question which had been propounded, "When is a boiler in a weak and unsafe condition?" the committee reported that "a general answer is that a boiler is in a

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weak and unsafe condition when the internal pressure approaches the rupture point of its weakest part." It was the conclusion of the committee, moreover, that "an explosion is never an accident and is always preventable; because it proceeds from a cause which might have been foreseen. The defect could have been remedied and the explosion prevented."

Beginning with these two principles, which largely represent the conclusions of the committee, the report proceeds to enumerate the causes of boiler troubles, which are found to be:

1. Faulty and defective design.
2. Poor material.
3. Poor and careless workmanship.
4. Improperly made repairs.
5. Bad material.
6. Improper care.

As regards the first cause—faulty and defective design—the committee finds that "a well designed boiler should have every part of the same strength and at all temperatures, so placed that adjacent parts will expand and contract together under all conditions and will not work against each other, thus producing strains in the structure that will ultimately tend to wreck it. All material should be uniform throughout, strong enough to carry its individual load, but not so strong as to fail to give and exert force on any other member of the boiler.

The second cause—poor material—results either from the purchase of inferior material by the company, or more frequently from careless handling in the forge fires or in some other process while it is being manufactured. This is a matter which requires careful inspection, both by builders and by the railroad companies.

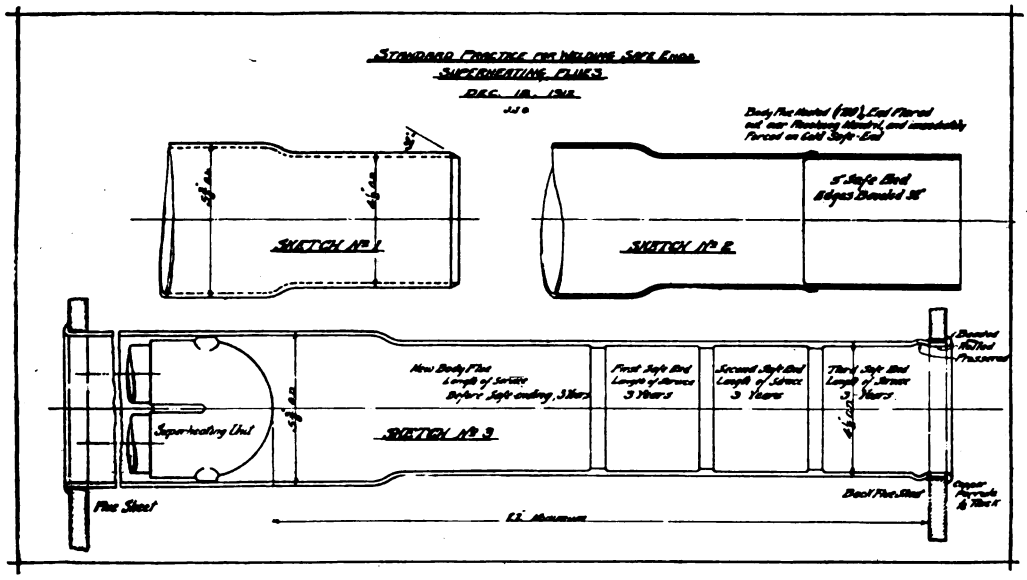
Poor and careless workmanship is also a factor when it comes to making repairs. It is not only necessary to have good workmanship, but to see that the material used in making repairs is not too strong or of the wrong grade, which would result in uneven expansion and contraction, liable to work great injury. In the opinion of the committee "bad water is probably the chief cause of corrosions, pitting and grooving." These destructive agencies very much weaken the shell, and if permitted to continue will ultimately lead to an unsafe condition.

The conclusion of the committee is really summed up in its declaration that "bad management is the chief source of boilers getting into weak and unsafe condition. All troubles can be discovered before the danger line is reached by careful, painstaking and competent examinations." The committee lays down the general rule that "when any defect is discovered that may mean damage, immediately allow the boiler to cool down, then make the necessary repairs."

The committee which was appointed to investigate the question of "Proper Inspection of a Boiler while in Service" reported that after a thorough discussion of the subject it was agreed, in view of the fact that this matter is being studied by a committee representing the various railroads of the country that the subject be held over for the following year in order that the combined results of both studies be presented.

"Is There Any Limit to the Length of a Tube in a Boiler Without a Support Midway of the Boiler, etc?"

THIS interesting and important question, which was entrusted to a committee for study and report thereon, brought forth a most interesting report. The committee finds that "thus far the flue 24 feet in length seems to have been the maximum length reached. Such flues have measured 2¼ inches outside diameter. Twenty-two feet seems to be the maximum length for the 2 inch outside diameter flue." The committee reports that it has not been able to secure any data which would indicate the necessity for intermediate supports for flues of the maximum length of the above. The general opinion seems to be that for flues of this length made of 1-16 or ⅛-inch material the necessity of a support is eliminated because of the buoyancy of the water. The committee finds that "a very good rule deduced from tests and experience tends to show that so long as the length of the flue does not



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exceed 110 diameters outside measurement, very satisfactory results are assured, and no attempt is made to hazard the statement that flues in excess of 120 diameters will not produce increased capacity and efficiency, because such might be disproven."

The difficulty with a midway support of the flues first of all concerns the installation of the tubes or of the midway support, which cannot be easily reached. After the boiler is put into service a deposit of sediment and scale forms on the flue around the support. In order to remove the flue it is necessary to strip this deposit from it. This is a difficult and tedious task in view of the remoteness of the deposit and the inability to get at it. In order to minimize this difficulty, split sleeves have been used, but they apparently have contributed very little. With flues of the length now used the buoyancy of the water, as has been said, supports the flues when the engine is in service. When, however, the boiler is empty and the engine is moved, this support is lacking and the vibration and lack of support may cause serious damage.

With reference to the question of the intermediate supports, the committee's conclusion is that "while there is no doubt but that the support holds the flue when put in place, the removal of the flue for repairs has proven such a difficult as well as expensive task that the scheme, while plausible, remains undetermined."

Concerning the question of a further lengthening of flues, and the probable necessity arising therefrom for intermediate supports, the committee called attention to the experiments conducted by Professor Goss in 1912, which showed that about 77 per cent of the water evaporated per square foot of heating surface occurs in the fire box or the first four inches of flue length. Dividing the flues from this point forward into four parts of equal length he found that in the first section (beginning at a point four inches from the box) a little over 22 per cent of the water evaporated; in the second, about 12 per cent, in the third about 7 per cent, in the fourth and last section, about 4 per cent. From this experiment the committee concluded that it is doubtful whether any material increase in the length of flues is economically desirable, both because of the mechanical difficulties of their installation and support, the increased friction of the gases through the use of longer lengths and the small amount of additional steaming capacity which the longer flue would contribute.

The Advantages and Disadvantages of using Oxy-Acetylene and Electric Welding Process for Boiler Maintenance and Repairs.

THE committee appointed to consider this subject reported that it had received reports from all of the members of the Association which were on file with the secretary. After reviewing the development of both processes of welding, the report of the committee states that the chairman personally visited many of the railroad shops throughout the country in which these methods were employed, and that he found that those connected with this work, from the boilermaker foreman to the superintendent of motive power, very enthusiastic about both processes. In addition to the use of these processes in connection with boiler work he found that they were being used in car departments in reclaiming steel castings, repairing and cutting steel cars and cutting off steel rivet heads.

As regards the use of these processes in connection with locomotive maintenance work, the chairman found that one or both methods were being successfully employed in connection with cracked and broken cylinders, steel driving boxes and cracked castings, worn castings, worn, cracked and broken frames, and welding material on flat spots in driving wheel tires. In addition to this work one or both processes are used in welding up cracked flue sheets, patching top flanges of flue sheets, side sheets and three-quarter door sheets, repairing broken mud rings, pittings in shells and flues and throughout the boiler generally. The investigation of the committee leads it to believe that it is impossible to weld up vertical cracks and guarantee results at ordinary times. However, the report states that such rapid progress is being made in the development of this work that the success of such operations is to be expected at any time.

With reference to the use of the electric process, the committee reports that while it is not as fast, it does very good welding on fire box sheets and a great many other places. With it you are not able to do the cutting possible with the oxy-acetylene process, and with the electric welder the operator must be placed behind a screen. The electric process is hard on the eyes, and is more difficult to handle because the operator must constantly hold a screen with one hand for the protection of his sight and of his hand.

Best Methods of Welding Superheating Tubes and Tools Used for Same.

THE committee appointed to consider this question presented a lengthy report summing up the results of its own observations and of the reports submitted to it by the members of the Association. The committee finds that at the present time the answer to this question is largely speculative as the welding of superheating tubes is as yet in the experimental stage. The reports submitted show a wide range of opinion concerning every matter covered, and it is difficult, if not impossible, to formulate any general conclusions. It is the opinion of the committee that all safe ending should be done at the firebox end, because this is the location at which extreme heat is encountered, and unusual stresses result. The committee is of the opinion that to cut the burs off the end of the flues and use the body of the flue in the firebox end for a bead would not lead to satisfactory results. From the testimony submitted it is indisputable that it is absolutely necessary to keep the flues tight at all times, and this requires considerable work, and can only be done where the very best material has been used, and the flues kept absolutely clean. In discussing the recommended methods of safe ending the flues the committee states that "to apply the safe end at the firebox end, at all times, it will be necessary to cut your flue as close to the front flue sheet as possible to avoid any additional waste of the body flue, and reduce the necessity of applying long safe ends." The average life of a body flue of this dimension, in this particular service, would not exceed four safe endings. The majority of flue welding machines are built so they can weld a safe end 14½ inches long. This can be

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done by first welding on a 5-inch piece, second an 8-inch piece, third an 11-inch piece and fourth a 14-inch piece. "At the expiration of this time unquestionably the body flue will be about worn out. To do this it will be necessary to cut your flue close to the front flue sheet, as well as close to the old weld in the back end. In repairing your flue in this manner you will always have a new safe end at all the firebox ends, as well as a flue with only one weld at any time. This will give an almost perfect flue in the locality where it is required to do the greater part of the work; also, where it needs all the strength and durability it is possible to have at all times." The accompanying cut shows the recommended practice of welding safe ends in superheating flues.

With reference to the question of the relative merits of welding machines for this work the committee states that after taking into consideration the questions which are as yet unsettled, it is impossible to make a complete report at the present time which would do justice to the machines now used for this work. The committee requested that this subject be carried over for consideration at the next convention, and that a committee be created to study the question in the meantime. The committee also decided to have the question as to whether flues should be annealed at the firebox end at all times asigned for study by this committeee.

Effect of Superheaters on the Life of Fireboxes and Flues.

THE committee appointed to consider this subject submitted a very brief report, in which it stated that it was unable to "find any well founded claim to show that superheating of steam has a detrimental effect upon the fireboxes or flues, but, to the contrary, it is shown that the life of the fireboxes and flues is prolonged considerably, from the fact that where steam is superheated the working pressure is reduced. However, there are many large engines carrying 200 pounds working pressure with superheaters that show no ill effect on fireboxes or flues."

"Best Form of Grate to be Used with Reference to Removing Fire at Terminals."

THE committee appointed to consider the subject of the "best form of grate to be used to insure removing of fire at terminal with least abuse of firebox and flues, insuring most economical as well as high efficiency" reported that it had seen no form of grate which would give the results possible through the use of the rocking finger grate. Investigation of the committee showed that this grate had given satisfactory service both in the use of bituminous coal, anthracite coal and lignite. Oil burning engines, of course, do not need such a grate. The committee reports incidentally that oil burners cause leaky stay bolts, crown bolts, flues and flanges, although a considerable portion of this difference must be ascribed to the character of the water encountered in the oil burning territory.

Mr. F. D. Timms, of the committee, in a postscript, states that "My experience has been that for efficiency and economy, and also speed in cleaning and dumping the fire with least abuse to firebox and flues, the finger rocker grates (fingers six inches in length), with the dump grates at rear of firebox, are the best. My preference for them is because a good, steady fire can be kept while the engine is in service without continued shaking of the grates, thereby utilizing fuel that would otherwise go into the ash pan.

"In cleaning or dumping the fire the fingers will crush the clinkers, at the same time forcing them into the ash pan with speed, according to the energy of the man using the shaker bar."

"What Benefit Has Been Derived from Treating Water for Locomotives Chemically?"

THE report of the committee upon this subject consists almost entirely of a series of questions and answers thereto. Summarizing the results of the committee's investigation we find that the practice of treating feed water is not general, but is confined largely to those places where water conditions are very bad. The usual treatment consists of making a solution of soda ash and lime, the relative proportions being determined according to local conditions. The reports indicate that such a mixture gives good results, it being the consensus of opinion that it reduces the formation of scale and foaming. There is a difference of opinion, however, as to whether it prevents corrosion. Moreover, the investigation shows that with the use of chemically treated water the mileage between washouts is much increased, and that the life of the flues and fire boxes has been lengthened from 150 to 500 per cent, resulting, of course, in a material decrease in maintenance and running expenses. The reduction of incrustation has also brought about the reduction in fuel consumption.

Against these advantages the soda ash treatment is reported in certain cases to have led to trouble and damage to injectors, discharge pipes and check valves, and to require increased lubrication. As regards the cost of treating the water, the Santa Fe reports a cost of four cents per thousand gallons, and the Canadian Pacific an expense of from two to five cents, according to conditions. The figures concerning the cost from other roads were not deemed by the committee to be sufficiently detailed to warrant presentation.

CAST STEEL BODY BOLSTERS, PLATFORMS AND END FRAMES FOR STEEL CARS

THE railway session of the American Society of Mechanical Engineers, recently held in New York City, was devoted in part to the presentation and discussion of a paper by Mr. C. T. Westlake, on "Cast Steel Double Body Bolsters, Platforms and End Frames for Steel Cars." Mr. Westlake pointed out that as recently as 1893 cast steel was comparatively unknown in car construction. Gradually it was introduced first for truck bolsters, later for body bolsters or transoms for freight cars, and next into the construction of passenger cars. Step by step end sills, buffing sills, longitudinal members and other parts were cast and gave a good account of themselves in practice. Finally, these parts, together with many

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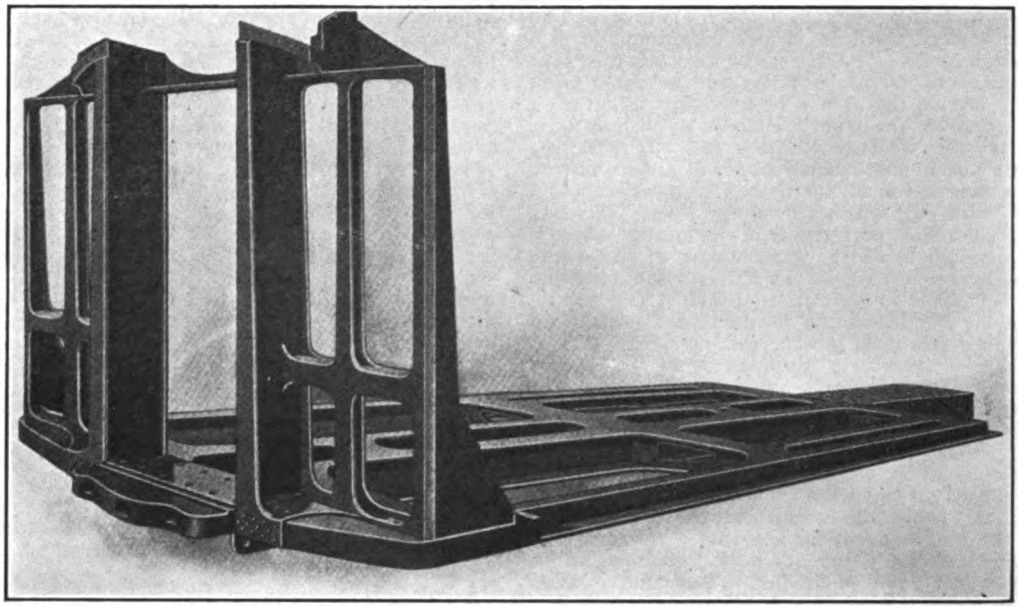
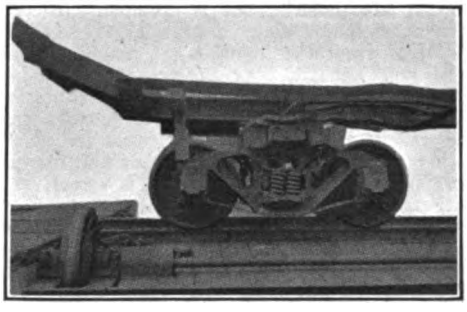


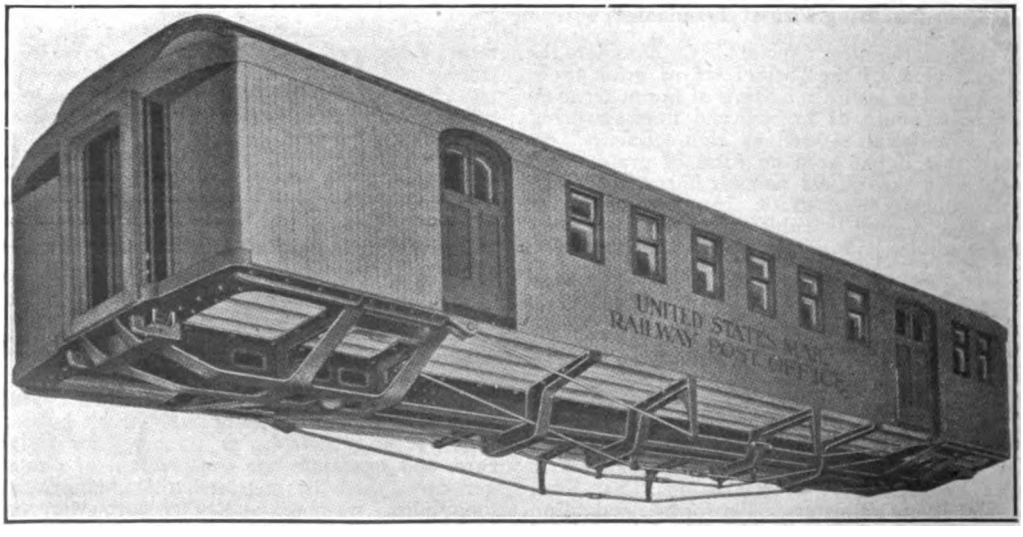
CAST STEEL END-FRAME FOR BLIND END CARS.



EFFECT OF WRECK ON CAST STEEL PLATFORM.

others, were combined into a few simple members, each made up of several castings under earlier conditions. At the present time it is only necessary for the car builder to connect them by center girders and to apply draft and buffing gears and he has a complete car frame.

It was pointed out that the ideal under frame should have all connecting members in the same plane so as to avoid buckling due to excessive loading; and to offer the maximum resistance to shocks. The present ideal in cast steel construction, as is shown by the accompanying cuts, is to so arrange the parts of the longitudinal members, particularly those supporting the platform so that when loaded to destruction by a collision the end portions yield upwardly, thus fold-



CAST STEEL UNDER FRAME.

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ing the exposed portion of the platform up against the end of the car body and forming an addition to the end frame to assist in distributing the force to all the longitudinal members of the superstructure.

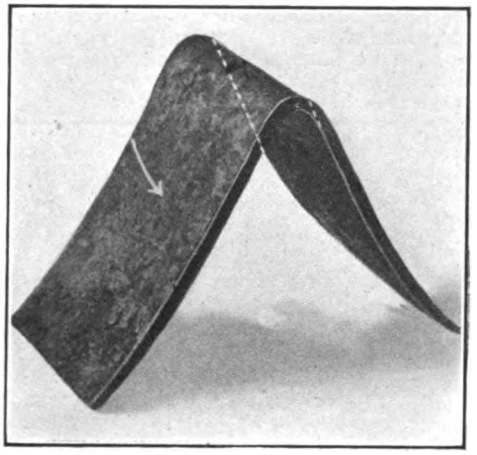
In car construction, cast steel stands pre-eminent as the best material for reducing to the minimum the weight and number of parts while maintaining requisite strength and other essential properties; its popularity in use will proportionately increase as its benefits and advantages are more fully demonstrated.

TEST FOR VANADIUM SPRINGS

SOME very interesting tests have recently been made to determine the lasting qualities of chrome-vanadium springs. The Railway Steel Spring Company has recently completed a test of its type "D" spring, of the semi-elliptic type, with 36-inch centers, and composed of seven leaves 4 x 3/8 inches. This test showed that the upper and lower test limits were respectively 171,400 pounds and 58,600 pounds fiber stress per square inch. A life test showed that the spring withstood 21,923 vibrations before failure (which occurred at the back plate close to the band). After this first failure the test continued. The second break occurred after 22,494 vibrations, the break occurring midway in the third plate.

At a test held at the McKees Rocks works of the Crucible Steel Company of America to determine the elastic limit of chrome-vanadium steel, a fiber stress of 256,000 pounds per square inch as the elastic limit was obtained. This, it is believed, constitutes a record for locomotive spring steel.

The elastic limit of carbon, oil tempered, and chrome-nickel springs, tempered, are respectively about 101,000 and 134,500 pounds per square inch. From this it will be seen that the chrome-vanadium spring has two and one half times higher elastic limit than the best of any other type. The tests were made upon leaves taken at random from a large number of locomotive springs being manufactured, and were made in the usual course of inspection. The degree to which the chrome-vanadium leaves withstood the strain is shown by the accompanying illustration. All the leaves bent at an angle of more than ninety degrees before breaking, while the best performance vanadium leaves showed a bend to an angle of 117 degrees.



REMARKABLE COLD-BENDING TEST OF LEAF FROM A VANADIUM LOCOMOTIVE SPRING

NEW SIGNALLING APPARATUS

UNIVERSAL SWITCH CIRCUIT CONTROLLER.

THE Union Switch & Signal Company has recently produced a new modification of the universal circuit comptroller, which this company has had on the market for several years. The general appearance of the new type is shown in the accompanying cut.

The new type makes possible a better method of adjustment, insuring greater accuracy and permanence. Each cam arm carries a pinion which meshes into a rack cut on the inner face of the slot in the quadrant, thus affording a micrometer adjustment. As in the former design the contacts are "interlocked" by the quadrants, so that when any quadrant is in a position corresponding to that of the outer one as shown in the accompanying cut, its contacts cannot be moved in either direction.

Instruments of this type are furnished with contacts operating in two or three positions, as may be desired. The former are suitable for shunting the track and opening signal circuits in automatic block signal installations; the latter for selecting circuits used chiefly at interlocking plants.

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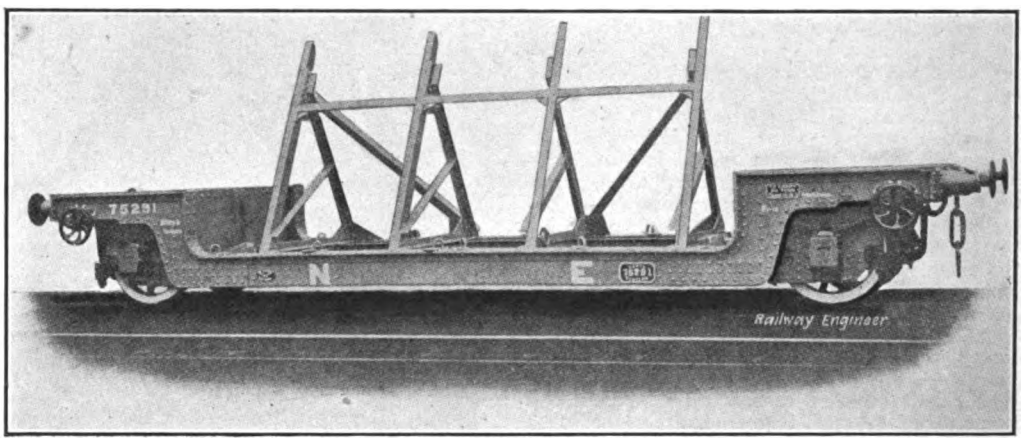
UNIQUE FOREIGN CAR FOR HANDLING STEEL PLATES

THE increasing size of castings, boiler and armor plates and other heavy freight of the same general character is one of the serious problems confronting the traffic and operating departments of railways the world over. It is now generally recognized that the railroads will be forced to provide special equipment for many of these classes of traffic. In line with this new development in the field of transportation the accompanying illustration of the new twenty-ton four-wheel plate wagon recently constructed by the North Eastern Railway of England will be interesting to American operating officials.

Of course, the carrying capacity of the car is very small as contrasted with American standards, but not disproportionately so when compared with that of the ordinary English freight car. The interesting features are the goose-neck framework of the car bringing the floor thereof, very much closer to the rail than would be ordinarily possible. In addition the permanent trestle is a most interesting feature, making for lower loading coasts and greater security in transit. The "well" or carrying floor will take a plate 19 feet long and 13 feet 3 inches within the load gauge. This large width was the real purpose sought after in the construction of the car.



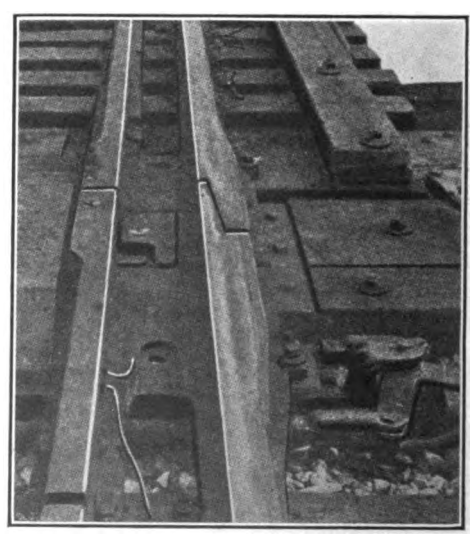
TWENTY TON FOUR-WHEEL PLATE WAGON, WITH FIXED TRESTLES; NORTHEASTERN RAILWAY, ENGLAND.

NEW TYPE OF RAIL JOINT FOR LIFT BRIDGES

A NEW type of rail joint for bascule bridges has been in successful operation for over a year on the bridge of the Chicago and Western Indiana Railroad over the Calumet River near South Chicago, Ill. The new design was worked out after vexatious experience with older types of rail joints, such as the sliding block, the sliding bar or the mitered type of joint. While these joints work successfully with short span swing bridges where the expansion does not protect a wide space between the abutting rail sections, and with lift bridges of moderate length, yet when they are applied to larger structures they bring with them serious objections.

The general character of the new type of rail joint is shown in the accompanying illustration. The new joints are made of cast manganese steel, and are of the mitered type, the point of the miter being arranged to trail in the direction of the traffic on the gauge side of the rails. The castings comprising the movable section of the track have guiding members cast on the under side which enter a pocket on the stationary section when the bridge is closed. These guiding members are tapered at the lower end, being used to end stationary section pockets when the bridge is closed, thus bringing the movable rail section to a close alignment regardless of the alignment of the bridge.

In order to reduce the effects of wear, the surface of the metal between the tread and the guard rail sections is raised and provided with inclined approaches. The same is true of the guard rails at the point of junction.



NEAR VIEW OF RAIL CONNECTION OF CALUMET RIVER BASCULE BRIDGE, C. & W. I. R. R.

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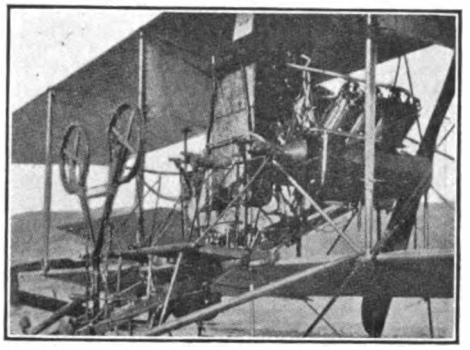
SCIENTIFIC APPLICATION OF THE GYROSCOPE

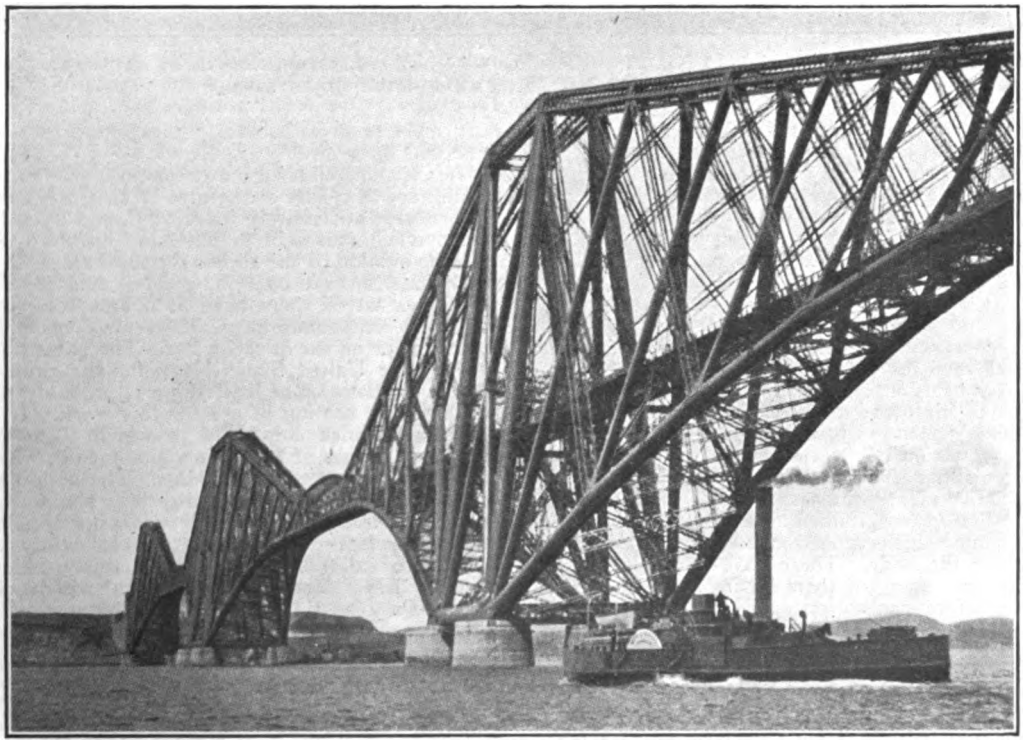
THE May issue of the *Journal* of the Franklin Institute contains a very interesting and timely article on "Scientific Application of the Gyroscope," written by Elmer A. Sperry. This peculiar device, whose action is so mysterious to the ordinary individual, has been applied extensively in connection with many forms of enterprise, it being used for stabilizing seagoing vessels, especially men of war, in the construction of compasses, in experimental installations of monorail trains, and finally in connection with aeroplanes. The accompanying illustration shows the installation of this device with an aeroplane. It is used, in brief, for the purpose of preserving an even keel, and preventing the flier from capsizing in gusty winds. The device is both automatic and capable of regulation by the operator at pleasure.



AEROPLANE SHOWING INSTALLATION OF STABILIZERS.

PROTECTING STEEL FROM CORROSION

MR. HENRY WILLIAMS has contributed a most interesting article to the May issue of the *Engineering Magazine* on protecting steel from corrosion. This article will be of interest to maintenance of way engineers and others having to do with the care of railway bridges, bulkheads, etc., located in or near sea water. Mr. Williams reviews briefly the various attempts heretofore made to compound a paint which will withstand the destructive agencies of sea water or air laden with salty moisture. He points out that thus far no one has devised a paint which successfully withstands the disintegrating influences, the result being that it is necessary to continually repaint bridges in order to prevent them from being destroyed within a few years. According to the author, linseed oil paint will not last more than three months under certain conditions, and there are many instances where, despite annual cleaning and painting, the stringers, floor beams and web plates of railroad bridges have been rapidly disintegrated by the



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THE GREAT STEEL BRIDGE OVER THE FIRTH OF FORTH; AN EXAMPLE OF BRIDGE CONSTRUCTION LIABLE TO CORROSION.

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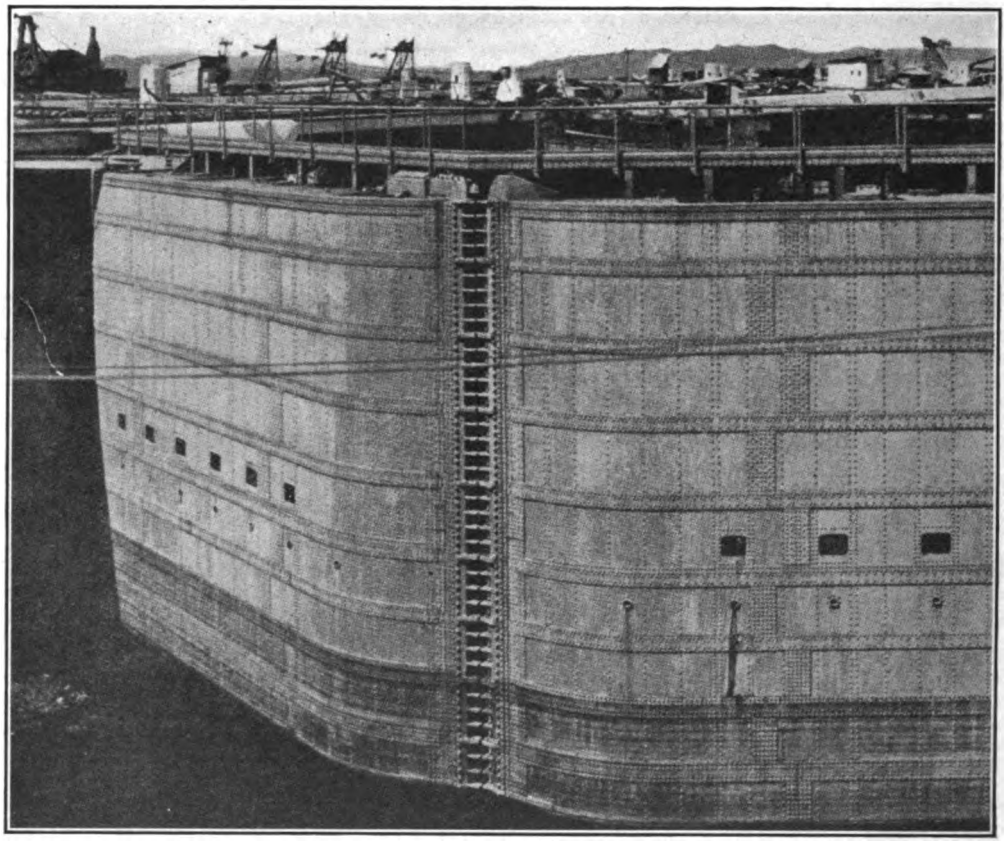

LOCK GATES, PANAMA CANAL. A STRIKING EXAMPLE OF STEEL CONSTRUCTION THAT MUST BE PROTECTED FROM CORROSION UNDER DIFFICULT CONDITIONS.

destructive agency. One of the most difficult problems in bridge maintenance is that connected with the great bridge over the Firth of Forth in Scotland. This bridge is exposed to heavy fogs and salt moisture from the North Sea. To keep it clear of corrosion and painting requires the continual work of a force of no less than forty workmen.

The corrosion problem is also encountered in connection with steel cars. Steel coal cars in particular corrode rapidly, and even the best paints thus far devised last but a short time.

In conclusion, Mr. Williams states that in the light of his own experience there are only three general classes of paint which offer promise for the protection of steel from the corrosive affects of moisture. These are, first, bituminous paints; second, cement paints, and third, varnish paints. The first class, bituminous paint, embraces those pigments which depend upon bitumen and coal tar for the body. These have a widely varying efficiency; many of them having to be melted by heat before application. The great objection is their inability to withstand long exposure to sunlight and open air.

The second class, cement paints, are those which have as a base some form of cement. They are probably not entirely waterproof, and must be compounded with skill to have any durability.

In the opinion of the author the third class, varnish paints, seem to offer the greatest field for research. Most of them have as a base tong oil, and such compounds have the greatest resisting power to the action of salt water. The paint now used by the United States Navy for the protection of the bottoms of battleships, is probably the best resisting coating in use for this work. It is a shellac varnish compound to which is added small percentages of turpentine, pine tar oil, white zinc oxide and metallic zinc dust. The action of the paint and salt water which brings about protection to the steel is not fully understood. The author expresses the hope that careful study on the part of all those interested in this problem may result in a development of a paint which will completely solve this most important question.

NEW HOISTING MACHINES ON NEW YORK DOCKS

AN interesting feature of modern dock equipment is illustrated by the recent installation of "Brownhoist" rapid freight handling machinery by the New York Dock Company at its docks at the foot of Baltic Street, Brooklyn, N. Y. The conveyers are intended to move freight to and from lighters, wagons, warehouses, freight-houses, railroad cars and delivery trucks.

The present installation, which is shown in the

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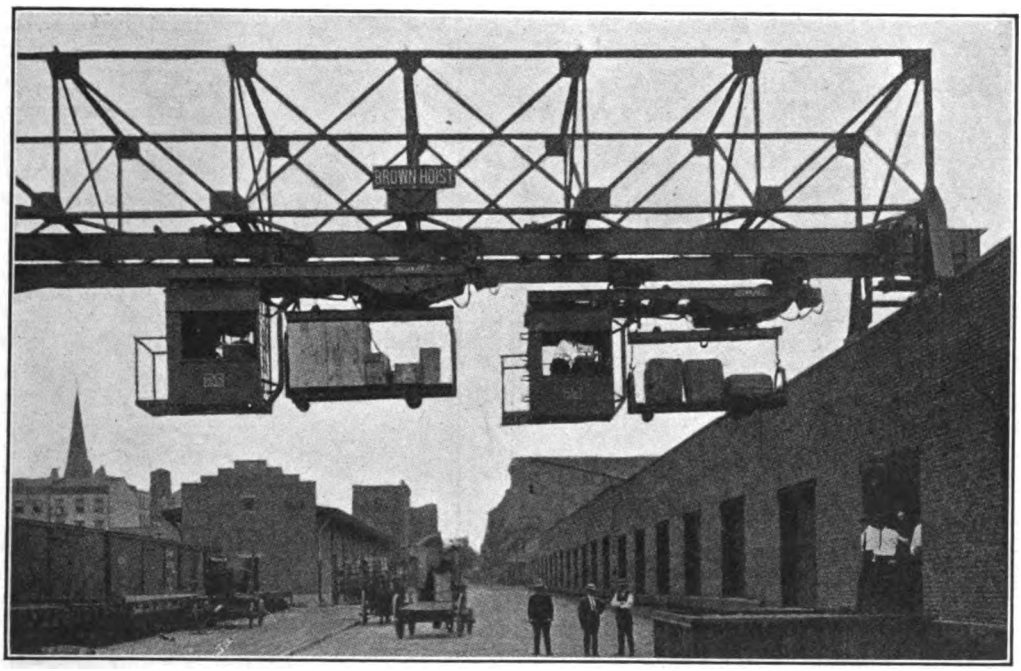


DOUBLE-TRACK FREIGHT CONVEYOR, NEW YORK DOCK COMPANY.

accompanying illustration, has been erected in connection with warehouse No. 117, which is used for sorting and storing the export and import freight. The machine consists of a single runway bridge on the wharf, a double runway bridge over the railroad yard and two "I" beam tracks through the warehouse, connecting with the outside runway bridges and with the internal system of two man trolleys.

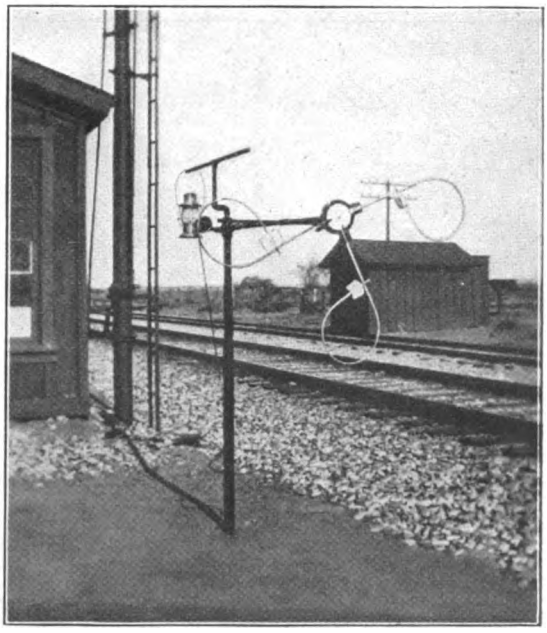
The limiting height of the hoist is 30 feet; the machine has a hoisting speed of 50 feet a minute when fully loaded and 120 feet a minute empty. The traveling speed is 450 feet per minute loaded and 550 feet per minute empty.

The plant, which is not yet running to full capacity, is thus far doing the work formerly requiring twelve men, and in addition is greatly increasing the capacity of the dock.

Interesting Experiments with Train Order Delivering Device.

THE Atchison, Topeka & Santa Fe System is experimenting on several divisions with a new device claimed to be capable of delivering nineteen train orders at the same time at any speed up to 100 miles per hour. The general character of the device is shown in the accompanying illustrations. The device is so constructed that it is possible to deliver train orders, unless at the highest speed, to both the first and second engines of a double header, and to the caboose or the coaches as well. The tests thus far made with the device have shown very encouraging results.

The device, as will be seen, consists of a suitable frame or stand to which is attached the mechanism operating the delivery arms, of which there are three. So rapid is the operation of these arms that they will change positions, one advancing after the other in a circular manner in time to enable the second engine of a double header to pick up a duplicate of the train order which was presented to the first locomotive. In the same way another duplicate is advanced for



THE JOHNSON TRAIN ORDER CRANE SET FOR DOUBLE HEADER. THREE HOOKS WITH ORDERS.

This machine has been successfully operated for eighteen months.

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the conductor or brakeman standing on the steps of a coach or a caboose.

ENGINEER'S HOOK OUT AND CONDUCTOR'S HOOK ALREADY IN POSITION.

The change is quick enough in double header work for a speed of 100 miles per hour.

LAST HOOK OUT AND ARM GOING BACK TO VERTICAL OUT OF SERVICE POSITION.

Hardwood Tie Plates in Europe.

M. MATTHEI, in a paper read at a recent meeting of the International Railway Congress, gives some very interesting information concerning current practices and results with the use of hardwood tie plates on European railways. We reproduce herewith illustrations showing some of the most generally used types of the plates. Most of these "pads" are made of oak, hornbeam or beech, which in many cases has been pickled. The purpose of the pad is to take the wear and the crushing effects off the rail preventing the destruction of the preserved tie, which in many cases gives service for thirty years or more.

The necessity of hardwood tie plates is peculiarly great in Europe because of the necessity of using soft woods for ties, which crush badly under the direct rail pressure. The use of the plate makes possible the employment of sleepers

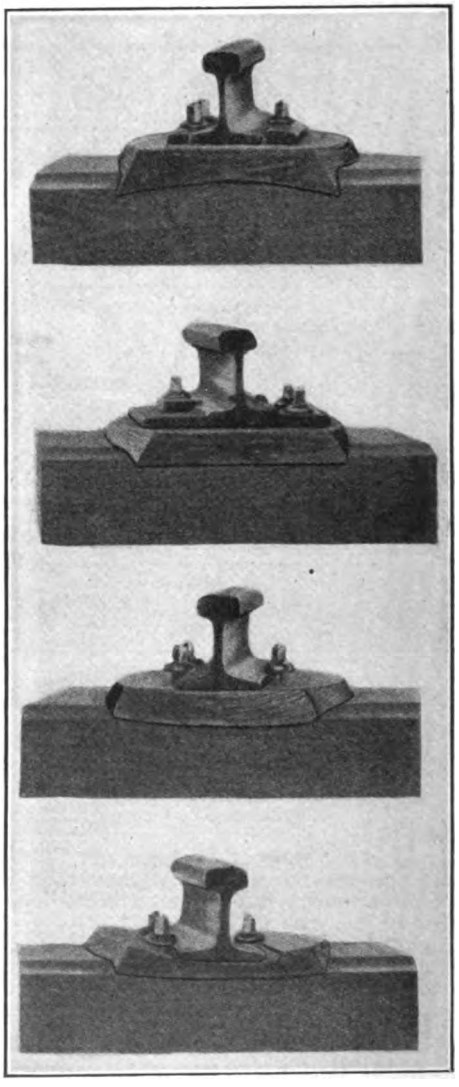

Figure 1.—Wooden tie plate with convex surface, spherical seat and iron bearing.

Figure 2.—Wooden tie plate with horizontal seat and iron bearing.

Figure 3.—Wooden tie plate with concave spherical seat and incline top surface for rail bearing direct.

Figure 4.—Wooden tie plate with concave spherical seat dapped for rail bearing direct.

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having a smaller cross section, a reduction in maintenance expenses; better insulation of electric conductors in connection with switches and signals and a better track alignment. In most cases screw spikes are used.

The hardwood tie plate is really necessary to secure the advantages of longer life coming from chemical treatment of sleepers, and this is the real reason for its general use.

System as Applied to Shop Repairs to Locomotives.

MR. A. K. KENDALL, foreman of the erecting shop of the Canadian Pacific Railroad at Montreal, read an interesting paper at the April meeting of the Canadian Railway Club on "System as Applied to Shop Repairs to Locomotives." He pointed out that the efficiency of repair shops depended directly upon the regularity with which the locomotives came into the shops. If the equipment is shopped spasmodically, say 5 per cent one month and 20 per cent the following month, additional cost is bound to result. Economical shop methods depend upon the co-operation of the operating department so that the equipment is shopped in even amounts.

The Canadian Pacific shop has worked out thoroughly the standardization of work, the application of the principles of scientific management to machine operation through the use of time studies, and other scientific methods. Wherever possible a straight piece work system is used as a stimulus to the workman, enabling the efficient workman to increase his earning capacity considerably above his former day rate. This is done without any additional strain upon him, for he is taught how to use his energy in the most economical manner. One of the problems to which much attention has been devoted concerns the apportionment of the compensation on piece work where more than one operator is employed. The end which is sought is to prevent the efficient man from losing because of his less efficient coworker. Much attention has also been given to the routing of work in the shop, testing of machines, and careful inspection.

Air Brake Problems.

THE April meeting of the New England Railroad Club was devoted to the consideration and discussion of a paper presented by Mr. Charles U. Joy, general air brake inspector of the New York, New Haven and Hartford Company. The paper, which was largely descriptive and historical in character, contained some interesting points concerning present practices and probable future developments. Mr. Joy reported that his company had had most excellent results with the use of Westinghouse high brake equipment (Schedule P. C.) in connection with high speed passenger work. Using as a basis of comparison the months of November and December, 1911, and January and February, 1912, his company had been forced to remove 77 pairs of slid-flat wheels. The total passenger car mileage for these months was 25,142,828, which gives an average of 326,530 passenger car miles to one pair of slid-flat wheels removed. Over 50 per cent of the amount were removed from cars using 70 pounds pressure, which hardly supports the general impression that high brake power causes slid-flat wheels.

Concerning the question as to what changes will have to be made in truck design in order to permit of greater break-shoe pressure, which will be necessary in case any large increase is made in the weight of trains, Mr. Joy stated that in his opinion it would be impossible to much increase the brake-shoe pressure without forcing the journals from their bearings. He believed that it would be necessary, when an increase in pressure must be made, through the use of still heavier equipment to apply a clasp brake or one using two shoes per wheel. This would give more bearing surface and eliminate the journal pressure resulting from the brake-shoe load, as at present applied.

In the discussion which followed the presentation of Mr. Joy's paper, Mr. R. D. Smith stated that he had had some experience with the use of clasp brakes on locomotives and found that they were open to the objection that they heated the tires and were very hard on the wheels, which "are showing a great deal of distress."

Selecting Explosives for Engineering Operations.

MESSRS. CLARENCE HALL and Spencer P. Howell, of the Bureau of Mines, Department of the Interior, have prepared a bulletin (No. 48), representing the results of much study and experimentation, on "The Selection of Explosives Used in Engineering and Mining Operations." The report deals exhaustively with the power and range of usefulness of each of the various classes of explosives ordinarily used in blasting operations. The reasons for the difference in the performance of each class is explained both practically and theoretically. What explosives are safe for use in gaseous or dusty tunnels or coal mines; those which can be used for neutralizing poisonous gases in tunnels or mine work; the merits of different classes of electric detonators, and the relative efficiency of each class of explosives when thawed or in a frozen condition, are exhaustively considered. The report will be of great interest and value to civil engineers and others having charge of railroad construction work.

Electrical

The Problem of Steam Railroad Electrification.

THE annual meeting of the American Institute of Electrical Engineers, held on May 20th, was given over largely to the discussion of a paper entitled "Trunk Line Electrification," prepared by Mr. Charles P. Kahler, in which some of the most distinguished men in the field participated.

Mr. Kahler brought out in his paper the facts that the electric locomotive in proportion to its weight could haul heavier loads than its steam

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rival; that unlike the steam locomotive, which must spend the larger part of its time in the shops, it was capable of giving a very large daily service which, in most cases, is double that performed by the older type; that it was possible to haul a larger tonnage with a smaller number of locomotives and that the economies of operation were considerable. A paper was also read by Mr. H. M. Hobart, of the General Electric Company on 2400-volt railway electrification. This paper consisted largely of a comparison of costs of steam and electric equipment for a hypothetical case of a mountain division 96 miles in length. The cost per one hundred ton miles with steam was given as 18.1 and with electricity as 11.6 cents.

The discussion was in many ways the most valuable feature of the meeting, for it brought out the views held by some of the most prominent engineers in this field. Mr. A. H. Armstrong, of the General Electric Company, contended that the plans for electrification should be made not with regard to present requirements but to those of the future; that if the work is in the end to prove economical it must consider "the traffic of five, ten or even fifty years from the present time."

Mr. F. E. Wynne, of the Westinghouse Electric and Manufacturing Company, took exception to some of the figures contained in the papers which had been presented, contending that the over-all figures given for efficiency between power house and line—namely, 89 per cent for general train service and 78 per cent for express train service—should be decreased from seven to ten per cent.

Mr. E. R. Hill, of Gibbs and Hill, expressed his gratification at the logical manner in which electrifications are being carried out. He stated that his firm had had occasion to figure on a number of mountain grade electrifications and that, in general, the results of the substitution of electricity for steam had been very satisfactory both as regards economy and an increase of speed and reliability of service.

Mr. A. H. Babcock, of the Southern Pacific Railway, in a written communication pointed out that generalizations with reference to trunk line electrification were extremely dangerous; he had found on the Pacific Coast that the savings due to electrification were by no means enormous and would not defray, except after the expiration of many years, the cost of the substitution. Power companies were not prepared to furnish electric current at sufficiently low prices to offer effective competition with fuel oil at the ordinary market rates on the Coast of 70 to 80 cents a barrel. Energy at the rate of five mills per Kw-hr. was prohibitive. He criticised the statements in one of the papers concerning the annual load factor given as sixty per cent as a minimum. Mr. Babcock believes that it would seldom rise above 20 per cent as a matter of fact. He was of the opinion that as a rule the total energy charge could be wiped out of the annual financial statement without making a material difference in the result, so small a part did it play in the total operating cost and in comparison with the fixed charges and other expenses.

In written discussions over the signatures of H. Y. Hall and G. W. Welch the statement was made that an insufficient allowance for first cost and maintenance was made as a rule under Western conditions. They believed that the figures submitted in the papers under discussion were much more favorable than would be found in actual practice.

New Haven Electrification Delayed.

BECAUSE of strikes of electrical workers the completion of the electrification of the portion of the New Haven's line between Stamford and New Haven has been somewhat delayed, with the result that it is not anticipated that regular service will be offered before August 1st. The structural work for the suspension of wires is largely concluded and the wiring is practically complete as far as Norwalk and will soon be finished to Bridgeport.

Additional Details Concerning St. Paul Electrification.

IT is known that both the General Electric and the Westinghouse Electric Companies are preparing estimates on the electrification work to be done of the Puget Sound Division of the Chicago, Milwaukee and St. Paul system. It is believed from the work thus far done that the cost of this electrification will be considerably less than the $8,000,000 originally estimated. It is roughly calculated that the cost will not exceed $8,000 per mile and as there are 450 miles to be electrified the total expenditure will be between $3,600,000 and $4,000,000. These figures include only the electrification work proper and do not include the cost of locomotives or any allowance for generating apparatus. As the power is to be purchased from hydro-electric companies no allowance must be made for the latter item.

Third Rail and Overhead Clearances.

AT the meeting of the American Railway Association held on May 21st, the Committee on Electrical Working submitted a report concerning third rail and overhead clearances. This Committee was composed of some of the most eminent men in the industry. The Committee reported in brief in favor of a minimum clearance of 15 inches from the track gage line, continued horizontally to a point within six inches of the track gage line and two and one-half inches above the track rail. The Committee reported that it intended to take up the various technical questions concerning overhead working conductors with the electrical working committees of the American Railway Engineering Association and the American Electrical Engineering Association. In advance, however, of the final conclusion the Committee desired to make a tentative report in which it was recommended in brief that a distance of 9 feet 11½ inches be allowed for overhead conductors above the top of the car making a clearance of twenty-five feet between the top of track rails and permanent way structures. This minimum applies to those conditions where trainmen are likely to give signals with a lantern; where such is not the case a minimum height of permanent way structure of twenty-four feet is provided for freight work; where no freight is handled, or if so handled in such a way that brakemen will not be required to pass over the tops of cars, a minimum height ranging from 15 to 18 feet is suggested.

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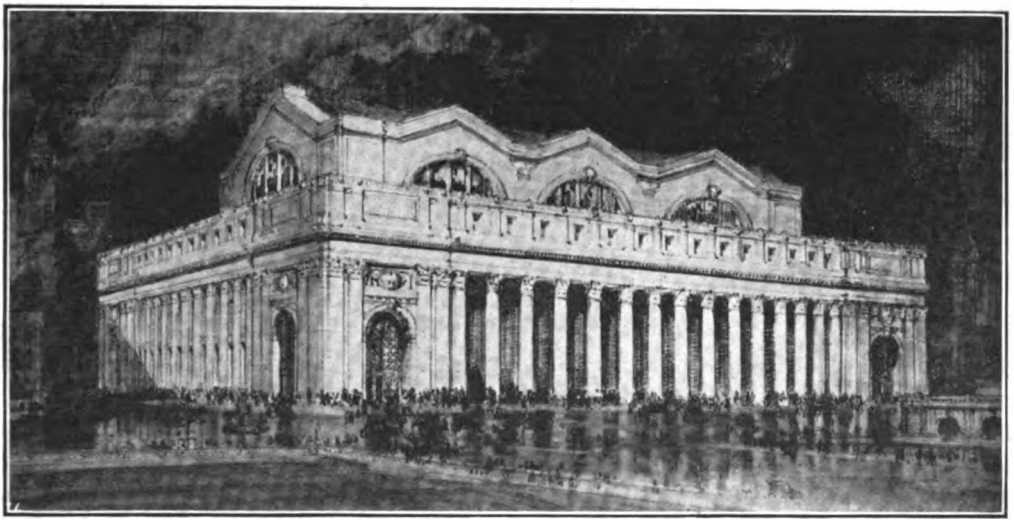
Terminal Facilities

Chicago's New Union Passenger Station.

THE following illustrations present a fair idea of the probable appearance of the new West Side Union Passenger Station the railroads of Chicago contemplate building.

These drawings disclose a structure of two principal parts—the train concourse at the track terminals, to lie on the east side of South Canal Street between West Adams Street and West Jackson boulevard, and the main station building with waiting-rooms, offices and other appurtenances to a modern station, to be on the west side of South Canal Street and extending to South Clinton, also between West Adams and West Jackson. As shown in the illustrations the main building will be a Corinthian-columned structure designed from the old Roman idea embodied in the palatial structure built to house the famous baths of the Imperial City. Within it will be an immense waiting-room with an arched ceiling 180 feet high, lighted with huge windows 100 feet above the floor. About the spacious waiting-room will be such offices as are required to conduct affairs of the terminal, telephone and telegraph stations, other public



PERSPECTIVE OF PROPOSED NEW WEST SIDE UNION PASSENGER STATION AT CHICAGO, VIEW LOOKING NORTHWEST.

GENERAL VIEW OF ENTIRE TERMINAL PLANT.

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service offices, barber shops, baths and shops where the traveling public may supply itself with the things needed while in transit. Of white American granite, this columned mass with its band of Americanized classic architecture surmounting the columns like a fillet will tower above the surrounding structures for the trains coming and going. In the illustrations is shown a general view of the whole terminal plant, with the south-bound train sheds at the left, West Jackson boulevard in the center, the north-bound tracks and the vaulted concourse to the right and the main station beyond. The Chicago River is in the foreground. The concourse will be a huge structure, 180 feet wide and 250 feet long. Of lower roof than the main building, this part of the plant with its great plaza under cover will be a vaulted building. It also will be constructed of American white granite. The concourse, containing the tracks, as shown in the illustration of the whole plant, will be of the same level as the great waiting-room in the main building, below the street grade, so passage from the waiting-room to train will be made without interruption. The tracks will be twelve feet below the Clinton Street grade, which is the standard for that section. Entrances and exits will honeycomb the containing walls of all the buildings. Neither in the concourse nor in the train sheds to the north will there be pillars, posts or columns.

There will be no confusing and dangerous baggage trucks running along the passenger walks between trains, no incumbering mail wagons. Along the river east of the concourse, as shown, will run a broad boulevard. Streets will be wide and free on all sides of all the buildings, and cab stands will be located conveniently under cover within the main station. Facing the concourse there will be twenty-six train tracks; ten will lead to the north, sixteen to the south. In the lower levels, beneath the track floor, will be elaborate mechanical equipment for handling baggage, mail and express. Baggage for loading will be passed up to the cars on elevators, as will mail. The station will be used by the Chicago, Burlington and Quincy; Chicago, Milwaukee and St. Paul; Chicago and Alton; Pittsburgh, Fort Wayne and Chicago, and Pittsburgh, Cincinnati, Chicago and St. Louis railways. Construction awaits only an enabling ordinance from the city council. The owners, as announced in "The Record-Herald," are ready to begin building at once.

PASSENGER TERMINAL AND OFFICE FACILITIES OF THE CANADIAN PACIFIC RAILWAY AT VANCOUVER, B. C.

PLANS have been prepared and work is now under way on certain improvements in connection with the Canadian Pacific Railway Company's passenger terminal at Vancouver, B. C.

By reason of its favorable location and the transportation facilities afforded by the enterprise of the Candian Pacific Railway, Vancouver has grown from a trading camp to a well established city with over 125,000 inhabitants in about twenty-five years' time. All business lines are represented in the commercial field centering at the city. The past growth has rendered inadequate the present facilities for handling the terminal business of the Railway Company, and plans have been adopted to relieve the present congestion, as well as to provide for reasonable growth in the near future.

The general scheme embraces a passenger station and office building suitably located on available land immediately east of the present passenger station. There will be four passenger tracks with provision for more when required, separated by wide platforms, between the station and the present freight yard. The passenger tracks are to be raised about five feet above the present track level to reduce the difference in level between the street and the tracks to about twenty-five feet.

In order to avoid an inconvenient grade crossing and delays to traffic between the city and steamship wharf a bridge on the line of Granville street extended, is to pass over the passenger and freight tracks to the steamship pier and connect directly with passenger accommodations on the pier. An incline is also to be built leading from the west side of this bridge to the wharf giving access to the lower deck of the pier and freight sheds, and the water front. Another viaduct over the tracks is to be built on the line of Burrard street extended northerly with an incline giving access to the present Trans Pacific pier and other portions of the water front.

The main entrance of the passenger station will be on Cordova street with the main waiting room located centrally in the station on the street level. Ticket offices serving the several classes of railway and steamship passengers are located at one

NEW PASSENGER TERMINAL OF THE CANADIAN PACIFIC RAILWAY AT VANCOUVER, CANADA.

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end of the waiting room, and the baggage checking room, lunch and dining room, parcel room, women's waiting room, men's smoking room, news booth, information booth and other facilities are all placed immediately adjoining the main waiting room.

On the lower floors of the station are located the baggage rooms, express companies' space, immigrant rooms, supply rooms, and other station facilities not directly used by passengers. Stairways and lifts connect the two levels of the station, and also afford communication with the office floors above. A separate footbridge is carried over the passenger tracks directly connected with the waiting room at one end and with stairways leading to the track level, giving access to platforms without crossing tracks at grade.

The track platforms are 1,000 feet in length, and are to be covered with shelter sheds of the umbrella type. The platform adjoining the station will be used only for baggage, express and supplies.

Above the public rooms of the station building the space will be devoted to the general offices of the railway company. The interior arrangement of the office space will be adapted for a unit system of subdivision; that is, each panel will have heating and lighting facilities so that partitions may be placed or removed at will in order to provide for changes in arrangement of office accommodations which may be desired from time to time.

The proposed steamship station on the pier is a two-level building, the upper floor being devoted to the passenger business and offices, and the lower floor to freight, baggage and express. There will be double level gangways on the west side of the pier, which will be used for the Victoria and Seattle service, the lower gangway being used for freight, and the upper for passengers; these gangways to be supported on floating pontoons to maintain the landing at a constant level with respect to the boats.

On the passenger, or upper level of the pier are provided waiting rooms, ticket offices, baggage checking room, customs office, and other conveniences. Separate rooms are provided for outgoing and incoming passengers. Two tracks will be placed on the surface of the pier within the shed, and one track on the outside, of the building for the direct handling of freight between cars and steamers.

The designs for the terminal have been prepared by Messrs. Westinghouse, Church, Kerr and Company, Montreal, Winnipeg, Calgary and Vancouver, in co-operation with the officials of the Canadian Pacific Railway, and the construction of the station and facilities is now being carried out by the same organization.

IMPROVEMENTS ON THE WESTERN MARYLAND

THE Western Maryland Railway has recently opened for business, its new Federal Warehouse at Baltimore, which is regarded by terminal experts as one of the best examples of warehouse construction. It is equipped with labor saving devices including several spiral chutes of new design, modern moving elevators, specially constructed trucks and other facilities for dispatch in handling freight and storage.

The building is 250 feet long by 60 feet wide. The interior is of reinforced concrete. The walls are of finished red brick, trimmed with white tile. The lower floor is a continuous series of doors, affording quick facilities for delivery.

It is six stories high above ground and a specially constructed basement has been built underground for wines, mineral waters, syrups and other commodities requiring cool storage. A

NEW WAREHOUSE OF THE WESTERN MARYLAND AT BALTIMORE.

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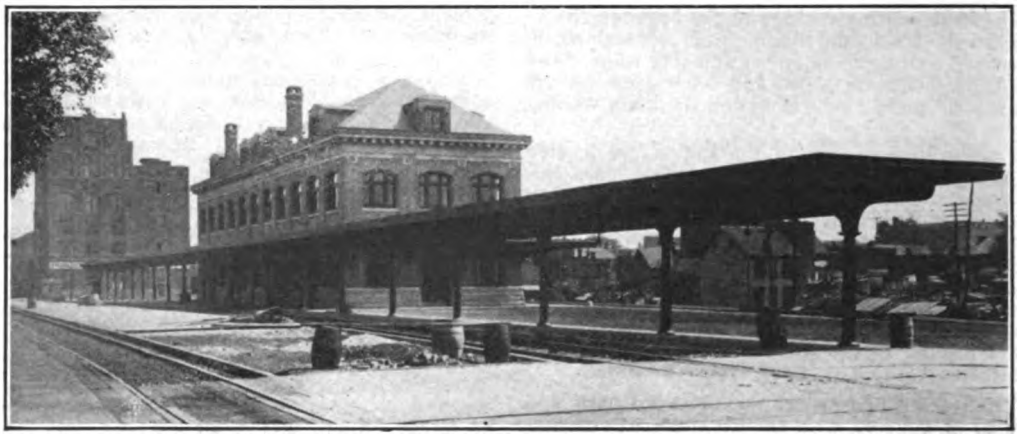

NEW PASSENGER STATION OF THE WESTERN MARYLAND AT HAGERSTOWN, MARYLAND.

heating appartaus has been installed and one entire floor is equipped to take care of goods requiring even temperature during the winter season.

The new warehouse has a capacity for unloading thirty cars at a time, four tracks ranging on the railroad yard side of the building. A motor truck garage is to be built in the rear on Front street, where these vehicles can be loaded and unloaded without interfering with the horse-drawn vehicles.

The building is of fireproof construction throughout and concrete piles were used in its foundation. Steel rolling doors are employed on the first floor, on the street and track side of building. The equipment includes two 4,000 pound capacity electric elevators and one 6,000 pound capacity electric elevator to run at a speed of 75 feet per minute from basement to sixth floor. There is also installed two gravity conveyors. The building is electric lighted throughout, has a complete system of intercommunicating telephones on each floor and sprinkling system supplied with two 15,000-gallon tanks on roof. The accompanying illustration gives a fair idea of its general appearance.

At Hagerstown, Md., this road has also recently completed the construction of an attractive passenger station as shown in the accompanying photograph. The passenger station proper is 40 x156 feet, built of brick with terra cotta trimmings. The first floor contains a waiting room, smoking rooms, toilets, baggage and express rooms, trainmen's and physician's rooms. The second floor is used for general office purposes. The building is steam heated and electric lighted, has glass marquise on all sides with umbrella shed extending the full length of platform on track side. The waiting room has a terrazza floor with paneled walls one third up. The baggage room has a cement floor.

Interstate Commerce Commission

The Eastern Railroads Petition for Increased Rates.

AS predicted in the May issue of the "Railway World." the Eastern carriers, as more fully discussed in another section of this issue, have petitioned the Interstate Commerce Commission for an increase of approximately five per cent in their freight rates. There is undoubtedly a much stronger public sentiment in favor of such increase now, than there was two years ago, and no inconsiderable portion of the press of the country have indicated editorially, that such an increase is desirable not alone for the railways, but for the continued prosperity of the business interests of the country. Certain it is, that unless some relief of this character is granted, transportation developments will be greatly retarded, if not entirely stopped, and thus commercial developments greatly restricted. It is not expected that this case will be argued until Fall, and in the meantime, it is hoped that the general public will become enough familiar with the situation to indicate their support to such action, by the Commission, as will permit the normal development of the country's great arteries of commerce.

Federal Valuation.

THE Board of Engineers, who the Commission have appointed to assist them in their task of procuring a physical valuation of the railroads, are individually referred to in another section of this issue. Their names also appeared in the May issue. Aside from these appointments, it is learned that approximately 10,000 applications for petitions in the physical valuation service of the Commission, have been received. Eventually, several hundred employes will be engaged on the work, but with the exception of the five members of the Advisory Board of Engineers, and of perhaps a like number of administrative heads of other departments of the work, all employes for this pur-

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pose will be obtained from the Civil Service Commission.

The Advisory Committee of the Railroads, which was created at the meeting in New York City, on April 24th, having advised the Interstate Commerce Commission of their desire to co-operate with the Commission, held a meeting on May 16th in New York City, for the purpose of further considering how the railroads could best do the work required of them under the Federal Valuation Act.

A communication was received from the Interstate Commerce Commission advising of its desire to have a conference with the Committee of the railroad companies at Washington, on Tuesday, May 27th, which invitation was accepted by the railroad companies.

Mr. Thomas W. Hulme was elected Secretary of the Committee, of which Mr. Samuel Rea is General Chairman; Mr. L. F. Loree, Chairman of the Eastern Group; Mr. W. W. Finley, Chairman of the Southern Group; and Mr. Hale Holden, Chairman of the Western Group.

Investigating New England Railway Conditions.

UNUSUAL interest was manifested during the month in the testimony of President Mellen, of the New Haven Lines, before the Commission, on the occasion of the investigation of the New England railway situation. President Mellen's statement was frank, vigorous and to the point, and in the main was a strong and satisfactory refutation of the many accusations and criticisms which have been hurled at him since the beginning of the agitation over New England railway affairs. The impression he created was undoubtedly of a most favorable character, and his statements were a revelation of the tremendous responsibilities which have rested upon his shoulders in his aggressive campaign to promote the commercial interests of New England. Mr. Mellen's testimony is referred to more in detail elsewhere.

Jurisdiction Test in Texas.

IT seems probable that there will be another test of jurisdiction between the Texas Railroad Commission and the Interstate Commerce Commission to their respective authorities with respect to the handling of interstate equipment.

The State Commission has issued a circular, which became effective May 2nd, relative to terminal charges at Galveston. Its enforcement means the discontinuance of the absorption of the loading and unloading charges for freight received from or delivered to coastwise vessels to be recognized at Galveston.

The State Appellate Court, in a case wherein the State Commission assessed fines aggregating some $14,000 for violations of the "thirty-minute rule," held that the alleged violations were committed in the operation of passenger trains performing interstate business, and were, therefore, under the jurisdiction of the Interstate Commission.

This decision gave the railroads a first cue to the question of their rights on interstate traffic. It was followed by a ruling of the Interstate Commission to the effect that freight having interior destination, even though it was billed to Galveston and rebilled from there, was interstate business.

The State Commission has previously claimed jurisdiction, but was not sustained in the adjudication which followed. Railroad traffic officers anticipate resistance from the State Commission, but feel confident of their position under the decision.

Commission Refuses to Interfere with Passenger Association.

CHAIRMAN MAYFIELD, of the Texas Railroad Commission, and Commissioner Watson, of the Oklahoma Commission, recently addressed letters to the Interstate Commerce Commission, asking an investigation of the action of the Southwestern Passenger Association of St. Louis in refusing a special rate of one cent a mile on account of the Confederate Veterans' Reunion to be held at Chattanooga. The railways announced a rate of two cents a mile. Commissioner Clements replied that the Commission felt it "could hardly with propriety, undertake to influence the carriers to make lower rates in any instance than they could lawfully be required to do; for, while the carriers may, under the law, as they often do, establish special fares for attendance on conventions, reunions, etc., we did not feel justified in urging them to do so, for the reason that it is our duty to pass upon the question of reasonableness of rates, fares and practices of the carriers and the lawfulness thereof."

Chicago Packers Demand Rate Reductions.

A PROCEEDING of importance to the large Chicago stockyards firms, has been begun before the Interstate Commerce Commission by Swift & Co., which is seeking to obtain a reduction in freight rates on fresh meat and packing-house products from St. Paul to Chicago. As the so-called St. Paul rates have been related in the making of rate schedules from Omaha, Kansas City, St. Joseph, Mo.; Sioux City, Wichita, Oklahoma City and Fort Worth, Texas, it is expected the ruling of the Commission in this case will have an important bearing on prospective changes in the rates to Chicago from the other cities.

Recently George A. Hormel & Co., of Austin, Minn., filed a petition with the Commission in which it was alleged that the rate in force of 20 cents a hundred pounds on fresh meat and packing-house products from Austin to Chicago was unreasonable.

It was contended that prior to the enforcement of the latter rate the railroads collected a charge of 15 7-10 cents a hundredweight on packing-house products and 17 cents a hundred pounds on fresh meat between the two points. After much evidence had been introduced, the Commission directed that the rates be reduced to 18½ cents on fresh meat and 16½ cents on packing-house products.

The existing rate from St. Paul to Chicago is 20 cents a hundredweight for both fresh meat and packing-house products and the petition filed by Swift & Co., contains a request that it be reduced to the same level as the Austin rates. If this step is not taken, it is asserted, the position occupied by St. Paul as a meat packing center will be menaced. Seven railroads are defendants.

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Preliminary Abstract for 1912.

BECAUSE of extraordinary demands upon the printing appropriation of the Interstate Commerce Commission, the publication of a Preliminary Abstract of Statistics of Common Carriers for the year ended June 30, 1912, has been greatly delayed, and, for the same reason, it has become impracticable for the Commission to distribute this abstract as in the past. Under the circumstances, arrangements have been made by which copies of the abstract may soon be obtained for 30 cents each from the Superintendent of Documents, Government Printing Office, Washington, D. C. It is important that any copies wanted be ordered at once from the Superintendent of Documents, as only a limited issue will be printed and the type distributed at an early date.

The abstract for 1911 (55 pages) presented extensive statistics from the reports of steam roads having operating revenues in excess of $10,000,000 for the year, comprising numerous items showing mileage, revenues, expenses, operating statistics, and equipment, as well as balance sheet, income account, and profit and loss account, and also certain figures from the reports of the principal express companies and the Pullman Company.

The 1912 preliminary abstract (171 pages) is similar to that of 1911, but its scope has been expanded to embrace about three times as many roads, including all having operating revenues in excess of $1,000,000 and it additionally includes returns of their freight traffic movement.

Private Freight Cars.

OWNERS of private freight cars throughout the country are preparing to present elaborate arguments to the Interstate Commerce Commission for the purpose of showing that they are not properly compensated by the railroads for the use of their equipment and that increases in the present tariffs should be made. The first of a series of hearings on the subject will be held under the auspices of the Commission within a short time and evidence will be introduced by a number of firms owning private rolling stock. Compensation for use of private freight cars is fixed on a mileage basis and the returns to the owners during the past few years, it is said, have not been sufficient to pay for interest on the investment, repairs and taxes. The private car owners will be opposed by the railroads, representatives of which will endeavor to show that the existing rate of pay is adequate.

Charge for Tariffs.

THE Commission has decided that the railroads may charge for copies of their freight tariffs other than those which they are required by law and the Commission's regulations to furnish for public consultation. The charges, however, must not exceed the cost of paper and presswork for running off the extra copies and price lists must be filed with the Commission. Tariffs will be furnished first to subscribers, but the railroads will not be required to print more than a limited number of copies for the contingent demand.

Recent Decisions.

A decision has been entered by the Commission in the case involving the suspension of new rules of the Rock Island and other railroads in the Central West governing the allowance for stoves and lining of cars used in transporting potatoes. The Commission held the opinion that when perishable fruit moves regularly and in sufficient volume to justify it, special provision for protecting that traffic from freezing should be furnished.

The Commission in its decision requested a full conference between the carriers and the shippers regarding the methods to be adopted for handling the traffic during the coming year, and asserts that if the matter is approached in the proper spirit, there should be no difficulty in arriving at an understanding. It also asserts that in case of failure of the parties to reach an agreement, the matter may again be called to the Commission's attention.

In the case involving iron shipments from Wisconsin to Chicago dealers, over the Soo Line, the Commission holds, in effect, that if a carrier has not terminal facilities of its own and if it cannot afford to pay for terminal services rendered by other carriers it should retire from competitive traffic. The case involved an increase in terminal charges by the Grand Trunk, which increase the Soo Line attempted to assess on the shipper. In referring to the Soo Line, the decision says:

"If it cannot afford to pay for the terminal services which other and competing carriers provide, it will doubtless have to retire from competitive traffic. It may not either by itself or in conjunction with other carriers maintain unreasonable or unjust discriminatory charges. It is of no interest to the shipper or consignee, nor, so far as appears, to the Commission, whether the Soo Line pays the Grand Trunk $3 per car or $6 per car for the delivery service.

"These carriers are at liberty to arrange between themselves for deviations from the general rules applicable in this district; but they may not, because of changed arrangements among themselves, pass along to their patrons increased charges unless the reasonableness of same is made clear."

A decision has been handed down by the Commission in which it holds that rail carriers may not properly advance charges to ocean carriers on import traffic, except where the property is billed through from point of origin to its ultimate destination, and such through billing separates the liability of the inland carrier or carriers from the liability of the ocean carrier, and shows the tariff rate of the inland carrier or carriers. Such charges of water carriers may not be advanced by railroad carriers subject to the act in cases where property moves under a separate contract of transportation from the port of entry to the final destination.

The Commission has awarded reparation in the case of the Pacific Creamery Company against the Southern Pacific and other carriers, and has held to be unreasonable the rate of $3.50 per hundred pounds on paper labels in less carloads via rail and water from New York City to Creamery, Ariz. The roads were ordered not to change after July 1st rates on this commod-

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ity that are any higher than the rates on paper wrappers or printed wrapping paper.

In the matter of advances in class rates from certain points in Pennsylvania and New York to St. Paul, the Commission has decided that they are not justified. The carriers' contention that they are relieved of the burden of proof, because of the proposed rates, while advances over those now in effect, are on a lower level than those in effect on January 1, 1910, is not sustained. The carriers are ordered to put into effect by June 1st the lake and rail class rates in effect May 28, 1912.

The Commission has also decided that advances in rail-and-lake rates from Central Freight Association territory to the Northwest through Lake Superior ports have, upon investigation, been found not justified and the rates in effect prior to June 24, 1912, are ordered restored by June 1st next, and to remain in effect for a period of two years.

It also holds that advances in lake-and-rail class rates from points in the Trunk Line territory to the Northwest and Lake Superior points, are not justified.

In a case unique in the history of the Commission, it has been decided that a tunnel 1,500 feet long, wholly within the State limits of Kentucky, made the traffic via the Baltimore & Ohio from Huntingdon, W. Va., to points on the Norfolk & Western in the same State, interstate traffic, although only the tunnel is without the West Virginia limits.

The Commission also held that the freight rates on steel rails and like commodities shipped by that route were unreasonable and reduced them.

The Commission has dismissed the complaint of the Scott Paper Company against the Pennsylvania and other railroads. The Commission held to be reasonable the rates on toilet paper from Philadelphia, Pa., to points in Central Freight Association territory, and not to be discriminatory as compared with rates from Albany, N. Y.

Readjustment of freight rates on coal from mines in Wyoming to destinations through the Middle West and Northwest, have been directed by the Commission in decisions of several cases brought by the Sheridan (Wyo.) Chamber of Commerce against the Burlington and other Western and Northwestern roads.

Commissioner Meyer, who prepared the opinion, suggested a scheme of rate readjustment, providing for certain reductions and equalizing differentials. This scheme the railroads are directed to carry out. If they do not, the Commission will issue a positive order on the subject.

Proposed advances in all rail and rail-and-water rates on ground iron ore from points in Alabama, Georgia and Tennessee to Boston, New York, Philadelphia and other north Atlantic ports, over railroads operating in this section, were held not to be justified by the Commission. The Commission, however, allowed the roads to withdraw commodity rates on these shipments, leaving in effect a slightly higher rate. The proposed advances would have increased rates approximately sixty per cent.

The Commission has permitted certain railroads to cancel joint rates on lumber from points on the Gulf and Ship Island, and the New Orleans, Great Northern railroads in Mississippi via the Illinois Central Railroad to points in Eastern Trunk Line territory, Eastern Canada and New England. It was found that other through routes and joint rates via shorter and more direct lines are provided, and no increased charges to shippers or receivers were involved.

It was said that the direct cause of the cancellation of the through rates was a disagreement among the roads as to the divisions of the rate. While this excuse was here held to be good, the decision of the Commission says: "Ordinarily such disagreements between carriers will not be recognized as justification for withdrawal of joint rates or through routes. Especially is this true if such withdrawal occasions higher charges to shippers and receivers, or deprives them of opportunity to ship via reasonable through routes."

A decision effecting the class rates from New York City water-and-rail to Middleboro, Ky., has been handed down by the Commission. In this case the Commission held that the class rates via Southern Railway from Birmingham, Ala., and other southeastern points and from Mobile, Ala., unjustly discriminate against Middlesboro, and unduly prefer Jellico, Tenn. Furthermore, it was held that the class rates, rail and rail, from New York City and other eastern points, and all-rail from Ohio crossings, to Middlesboro, are unreasonable. In each instance the Commission prescribed a new schedule of rates which the roads were ordered to put in effect by July 15th.

In the case of the Memphis Freight Bureau against the Illinois Central and other railroads, the Commission holds to be unreasonable the rates of 13 cents on logs from Pearson, Mass., to Memphis, Tenn. The Commission held that the rate should not exceed 9.25 cents per hundred pounds. The roads were ordered to put the reduced rate in effect by July 15th, and to pay reparation on previous shipments to the May Bros., of Memphis.

Rate Advances.

The Commission holds that the increases on rates on sand and gravel, from Anchorage, La., to Houston and Beaumont, Tex., and from Kinder, La., to Houston, Tex., to be reasonable on all roads operating in this section.

The Burlington and other railroads have been ordered to withdraw their tariffs proposing advanced rates on furniture in carloads from Burlington, Iowa; Port Washington, Wis., and other points to St. Paul, Minn., and other points and to file other tariffs in conformity with the findings of the Commission. The roads had proposed to advance these rates on furniture, including the general mixture of furniture, church and school furniture, opera seats, chairs and cribs.

The Commission held that a moderate advance in the commodity rates may be justified.

The Northwestern and other railroads have been permitted to put into effect the proposed advances in the rates on flax tow and excelsior from St. Paul to Chicago. Advances in other rates out of St. Paul on this same traffic, however, were disallowed as of May 15th. This would have included advances in rates to Des Moines, Omaha, Kansas City and other points.

Proposed advances in joint rates over the Delaware, Lackawanna & Western on cement from

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Nazareth, Pa., to Phillipsburg, N. J., were found by the Commission to be justified. These rates were found to be out of harmony with the general plan for cement rates from this section, but the Commision declared it would make no order for the purpose of indirectly influencing intrastate rates by preventing increases in interstate rates.

Rate Suspensions.

The following rate suspensions have been ordered by the Commission during the past month: Tariffs of the Burlington, Great Western, Rock Island, Missouri Pacific and Wabash railroads, advancing rates on various commodities between Missouri River points, from May 1st until November 1st; these tariffs were previously suspended from January 1st. Advances in class rates and commodity rates between points in Iowa and Minnesota points and points in Pacific Coast territory, from May 2nd until November 1st; these rates were originally suspended from January 2nd. Advances in rates on butter and eggs from Tacoma, Kansas and Memphis, Tennessee, and other points from May 1st, to August 29th; these rates were previously suspended from January 1st. Tariffs of the Frisco and other railroads proposing to cancel through joint class and commodity rates between stations located on the Kansas City and Memphis Railroad, from May 2nd until August 16th. Tariff of the Delaware and Hudson proposing to eliminate milling and transit privileges on corn milled or mixed at Oneonta, New York, from May 1st, until November 1st; this tariff was previously suspended from January 1st. Advances in rates on cotton seed from points in Texas to New Orleans from May 2nd until August 30th; these rates were originally suspended from January 2nd. Advances in the charge for the refrigeration of car load shipments of fruits, vegetables, etc., between points in Colorado and Utah, from May 1st until November 1st; these advances were previously suspended from January 1st. Schedules proposed to cancel joint through class and commodity rates from and to stations on the Bangor and Aroostook Railroad, on shipments via the Maine Central Railroad, suspended until July 17th. Tariff of the Southern Railway effecting tobacco rates from Winston-Salem, N. C., from May 18th until September 5th. Increase in lumber rates from California points to El Paso, Texas, suspended until September 2nd. Class and commodity rates between New Orleans and various points in the South to Chicago and other points in Illinois, on roads operating in Southern and Central Freight Association territory until September 2nd. Advances in cement rate over the Great Northern and Northwestern railroads from points in Iowa to points in Minnesota, North and South Dakota and Wisconsin, suspended until September 2nd. Tariffs of the Lackawanna cancelling the present joint class and commodity rates between points on the Morristown and Erie Railroad and points reached via the Lackawanna from June 1st until September 17th. Increase in freight rates on bituminous coal shipped from Illinois mines to Wisconsin, Minnesota and other States, suspended until September 9th. Advances in rates on calves from Refugo, Texas, to New Orleans and St. Louis, from May 14th until September 11th. Exceptions to Western Classification effecting the rate on iron and steel window sash from interstate points to points in Texas, Louisiana and Mexico, from May 11th, until September 6th. Increases in rates on structural iron and steel from the eastern and western destinations from May 15th until September 12th. Advances in rates for transportation of high explosives from St. Louis and Cairo and points taking the same rates to Boston, New England and Canadian points from May 15th to September 12th. Advances in carload rates on oranges from Folson, Cal., to Brighton, Cal., suspended until September 18th. Advances in rates on petroleum and petroleum products from Beaumont, and other points in Texas to Clifton, Arizona, from May 15th until September 12th.

Suspension Orders Vacated.

The Commission holds to be reasonable the proposed advances in class rates from Chicago, Peoria, St. Louis and points taking the same rates to Watertown and other destinations in South Dakota. The order of suspension issued against these rates was vacated as of April 29th.

The Commission has vacated its order of suspension issued against the advances in rates on olives, olive oil, drugs and other commodities from points in California to Eastern destinations. These advances, filed some time ago by the transcontinental freight bureau, it was said, have since been cancelled and the railroads have restored the old rates which were previously in effect.

The Commission has dismissed a complaint filed by the Parlin & Orendorff Plow Company of St. Louis, asking that an order be issued commanding the United States Express Company to return without charges a package shipped to Ozark, Ark., and intended for Ozark, Mo. When delivered to the express company the package bore the incorrect destination, and the accompanying receipt, already filled out by the shipper, showed the correct address. Before signing the receipt the express agent changed the designation to agree with that on the package. The Commission holds that the carrier in issuing receipt was not bound to call attention to the change in destination thereon the mistake having been made by the complainant in misdirecting the package. The Commission contends that the alteration made by the agent on the formal receipt was ample notice that an error had been made. If the agent had completely filled out the receipt in the first instance it would have read "Ozark, Ark."

ELECTIONS AND APPOINTMENTS.

Executive.

Daniel Breck, vice-president in charge of operation, Missouri, Oklahoma and Gulf. Headquarters, Muskogee, Okla.

Edward Chambers, vice-president, Atchison, Topeka & Santa Fe Railway. Headquarters, Chicago.

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George J. Gould, president, Fort Smith & Little Rock Railroad Company.

E. F. Kearney, vice-president, Texas & Pacific. Headquarters, St. Louis, Mo.

E. L. Marbury, president, Alabama, Florida & Southern. Headquarters, Malone, Fla.

J. P. Morgan, Jr., director, Nickel Plate and Lake Shore and Michigan Southern Railway.

A. Pardee, vice-president, East Tennessee & Western North Carolina Ry.

G. L. Peck, director, the Panhandle.

Robert W. Perkins, president, Shore Lines Electric Railway. Headquarters, Norwich, Conn.

Henry Tatnall, director, Pennsylvania Company.

William V. S. Thorne, vice-president, Union Pacific, the Oregon Short Lines and the Oregon-Washington Railroad & Navigation Company. Headquarters, New York.

W. S. Wilson, vice-president and general manager, Alabama, Florida & Southern. Headquarters, Malone, Fla.

Legal.

W. A. Colston, general solicitor, Louisville & Nashville. Headquarters, Louisville, Ky.

Judge Thomas J. Freeman, general counsel, Texas & Pacific R. R.

J. G. Wilson, interstate commerce attorney, Southern Pacific Company. Headquarters, New York.

Financial.

F. W. Ireland, assistant treasurer, Fort Smith and Little Rock Railroad.

A. H. McCalef, secretary and treasurer, Fort Smith and Little Rock Railroad.

John M. Metheany, secretary and auditor, Grand Rapids & Indiana. Headquarters, Grand Rapids, Mich.

F. L. Paetzold, cashier, Great Northern Railroad Company.

John S. Wise, secretary and treasurer, East Tennessee & Western North Carolina Ry.

Accounting.

C. C. Barry, assistant comptroller, Southern Pacific Company. Headquarters, New York.

W. F. Bray, auditor and traffic manager, Alabama, Florida & Southern. Headquarters, Malone, Fla.

J. T. Ehricht, auditor, Wichita Valley Ry. Headquarters, Wichita Falls, Texas.

F. L. Fries, auditor of disbursements, Union Pacific.

A. W. Grindle, acting general auditor, Bangor & Aroostook Railroad. Headquarters, Bangor, Me.

W. L. Maury, consulting auditor, International & Great Northern. Headquarters, Houston, Texas.

F. W. Meyer, auditor, St. Joseph Terminal Railroad Company. Headquarters, St. Joseph, Mo.

W. E. Rittenhouse, auditor traffic accounts, C. H. & D.

C. S. Sikes, auditor, Pere Marquette R. R. Headquarters, Detroit, Michigan.

H. S. Walker, auditor and assistant secretary, Louisiana Western. Headquarters, New Orleans, La.

W. J. Werner, auditor, International & Great Northern. Headquarters, Houston, Texas.

W. B. Wilkins, assistant general auditor, Union Pacific.

Engineering and Mechanical.

W. H. Alderson, bridge engineer, Oregon-Washington Railroad & Navigation Company. Headquarters, Portland, Oregon.

B. H. Allmain, roadmaster, Seattle Division, Northern Pacific. Headquarters, Seattle, Wash.

P. Alquist, superintendent of car department, Missouri, Kansas & Texas. Headquarters, Sedalia, Mo.

J. A. Anderson, master mechanic, Baltimore & Ohio Railroad. Headquarters, Lorain, Ohio.

J. W. Barrie, principal assistant engineer maintenance of way, Florida East Coast Ry.

W. S. Basinger, division engineer, Southern Kansas Division, Atchison, Topeka & Santa Fe. Headquarters, Chanute, Kansas.

R. A. Becker, supervisor of signals, Eastern Lines, Grand Trunk System. Headquarters, Montreal, Que.

R. R. Black, roadmaster, Atchison, Topeka & Santa Fe Ry. Headquarters, Rincon, N. M.

Charles Boertman, superintendent of shops, Pere Marquette. Headquarters, Saginaw, Mich.

J. F. Bowden, master mechanic, Baltimore & Ohio Railroad. Headquarters, Newark, Ohio.

Oscar S. Bowen, resident engineer, Great Northern. Headquarters, Seattle, Wash.

J. W. G. Brewer, assistant district superintendent motive power, main line district, Baltimore & Ohio Railroad. Headquarters, Baltimore, Md.

F. W. Bruce, resident engineer in charge of the new municipal terminal development, City of Jacksonville, Fla.

J. E. Buckley, general foreman, third division, Boston & Maine.

T. J. Burke, division engineer, Lehigh Valley Railroad. Headquarters, Hazleton, Pa.

L. J. Carmalt, construction engineer, Central New England, New York, New Haven & Hartford R. R. Headquarters, Hartford, Conn.

C. Chandler, assistant bridge engineer, Illinois Central R. R. Headquarters, Chicago, Ill.

G. F. Chisholm, resident engineer, New York Central & Hudson River Railroad. Headquarters, Utica, N. Y.

P. Coniff, superintendent of shops, Baltimore & Ohio. Headquarters, Mount Clare, Baltimore, Md.

Joseph E. Crawford, acting chief engineer, Norfolk & Western Ry. Headquarters, Roanoke, Va.

J. L. Crouse, superintendent of shops, Electric Division, New York, New Haven & Hartford Railroad. Headquarters, Van Nest, N. Y.

N. R. Cullings, engineer, Western Lines, Southern District, Atchison, Topeka & Santa Fe. Headquarters, Amarillo, Texas.

C. E. Douglas, chief engineer of track and roadway department, Northwestern Pennsylvania Railway. Headquarters, Meadville, Pa.

K. A. Dumphy, resident engineer, Canadian Pacific, District No. 2 Alberta Division. Headquarters, Calgary, Alta.

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K. B. Duncan, engineer, Gulf, Colorado & Santa Fe. Headquarters, Galveston, Texas.

K. B. Duncan, engineer, Gulf Lines, Gulf, Colorado & Santa Fe Railway. Headquarters, Galveston, Texas.

W. C. Earl, chief engineer, the Oregon Railroad Commission.

J. E. Fahy, trainmaster, C. L. & W. and C. T. & V. Districts.

R. J. Gatewood, division engineer, New Mexico Division, Atchison, Topeka and Santa Fe. Headquarters, Las Vegas, N. M.

H. F. Grewe, master mechanic in charge of locomotive and car departments, Wabash-Pittsburgh Terminal and the West Side Belt. Headquarters, Rook (Carnegie, Pa.).

George O. Hammond, assistant mechanical superintendent, New York. New Haven & Hartford.

F. H. Hanson, assistant master car builder, Lake Shore Division, Lake Shore & Michigan Southern and the Dunkirk, Allegheny Valley & Pittsburgh. Headquarters, Collinwood Shops, Ohio.

J. Kirkpatrick, master mechanic, Riverside shops, Baltimore & Ohio Railroad. Headquarters, Baltimore, Md.

W. J. Lank, division engineer, Atchison, Topeka and Santa Fe. Headquarters, San Marcial, N. M.

C. W. Lord, office engineer, New York, New Haven & Hartford R. R. Headquarters, New Haven, Conn.

Joseph McCabe, master mechanic, New York, New Haven & Hartford R. R. Headquarters, Harlem River, N. Y.

T. R. McLeod, master mechanic, Canadian Northern Ontario Railway. Headquarters, Perry Sound, Ont.

John McNaughton, trainmaster, Erie Railroad Company. Headquarters, Jersey City, N. J.

W. D. Manchester, chief engineer, Manistee & North-Eastern R. R. Headquarters, Manistee, Mich.

B. C. Martin, assistant district engineer, New York Central & Hudson River Railroad. Headquarters, Poughkeepsie, N. Y.

L. C. Maxwell, engineer maintenance of way, Algoma Central & Hudson Bay. Headquarters, Sault Ste. Marie, Ont.

W. H. Moore, engineer of structures, New York, New Haven & Hartford R. R. Headquarters, New Haven, Conn.

W. W. Morrison, assistant signal engineer, Electric Zone and Electric Division, New York Central & Hudson River.

H. E. Myers, shop superintendent. Lehigh Valley. Headquarters, Packerton, Pa.

F. W. Nelson, general road foreman of engines, New York, New Haven & Hartford R. R. Headquarters, New Haven, Conn.

C. M. Nye, principal assistant engineer, Great Northern. Headquarters, St. Paul, Minn.

H. C. Oviatt, assistant mechanical superintendent, New York, New Haven & Hartford Railroad.

W. H. Patton, supervisor of signals, Ontario Lines, Grand Trunk Railway System. Headquarters, Toronto, Can.

C. H. Reid, master mechanic, Western Division, New York, New Haven & Hartford R. R. Headquarters, Waterbury, Conn.

F. W. Rhuark, master mechanic, Baltimore & Ohio Railroad. Headquarters, Garrett, Ind.

G. A. Rodman, general supervisor of bridges and buildings, New York, New Haven & Hartford Railroad. Headquarters, New Haven, Conn.

P. V. Sherman, assistant engineer, Western Division, Missouri Pacific. Headquarters, Kansas City, Mo.

W. C. Steffa, superintendent, car service, Chicago & Alton. Headquarters, Chicago, Ill.

T. R. Stewart, master mechanic, Baltimore & Ohio Railroad. Headquarters, Baltimore, Md

A. S. Tlttle, construction engineer, New York, New Haven & Hartford Railroad. Headquarters, Boston, Mass.

T. M. Vickers, general foreman, Oregon Short Line. Headquarters, Pocatello, Idaho.

H. W. Wagner, engineer, Western Lines, Northern District, Atchison, Topeka & Santa Fe. Headquarters, La Junta, Col.

J. W. Walter, division engineer, Pecos Division, Atchison, Topeka & Santa Fe Ry. Headquarters, Pecos, N. M.

I. D. Waterman, construction engineer, New York, New Haven & Hartford Railroad. Headquarters, New Haven, Conn.

W. J. Weller, superintendent of bridge construction, Canadian Northern Ry.

B. A. West, inspector of track and roadway, the Santa Fe.

A. R. Whaley, head of engineering, construction and maintenance department, New York, New Haven & Hartford R. R.

A. J. Wharf, chief engineer, Peoria & Pekin Union. Headquarters, Peoria, Ill.

D. W. Whisner, supervisor, sub-division No. 11, Baltimore & Ohio. Headquarters, Clarksburg.

L. B. Wickersham, chief electrical engineer, Oregon Electric Railway, and the United Railways. Headquarters, Portland, Ore.

W. B. Willis, assistant division engineer, Monongah Division, Baltimore & Ohio Railroad. Headquarters, Grafton, W. Va.

H. S. Wollan, resident engineer, Great Northern Ry. Headquarters, Superior, Wis.

Operation.

W. H. Averell, assistant general superintendent, Baltimore & Ohio Railway. Headquarters, New York.

J. C. Barton, trainmaster, Atchison, Topeka & Santa Fe Ry. Headquarters, Las Vegas, N. M.

Emil J. Bauer, manager of lighterage and foreign freight departments, Erie Railroad. Headquarters, Produce Exchange, New York.

James D. Beaver, assistant superintendent, Pittsburgh, Shawmut & Northern. Headquarters, St. Mary's, Pa.

J. M. Boyd, trainmaster, Fargo Division, Northern Pacific. Headquarters, Dilworth, Minn.

M. H. Broughton, trainmaster. West-End Cumberland Division, Baltimore & Ohio. Headquarters, Keyser, W. Va.

M. H. Cahill, assistant superintendent, Cumberland Division. Headquarters, Keyser, W. Va.

J. H. Clark, superintendent, floating equipment, Baltimore & Ohio. Headquarters, Baltimore, Md.

A. J. Cleary, chief despatcher, Kansas City, Mexico & Orient of Texas. Headquarters, San Angelo, Texas.

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James T. Colbert, trainmaster, Pittsburgh, Shawmut & Northern. Headquarters, St. Mary's Junction, Pa.

Harold Cole, trainmaster, Erie Railroad. Headquarters, Jersey City, N. J.

John W. Deneed, trainmaster, east-end Cumberland Division, Baltimore & Ohio R. R.

T. M. DeVere, inspector of suburban service, Erie Railroad. Headquarters, Jersey City, N. J.

William R. Driver, Jr., general manager, Wilmington & Northern R. R.

J. A. Droege, superintendent, Shore Line Division, N. Y., N. H. & H. R. R.

L. J. Ferritor, superintendent, Buffalo Division, Delaware, Lackawanna & Western. Headquarters, Buffalo, N. Y.

C. G. Fluhr, trainmaster, Valley Division, Atchison, Topeka & Santa Fe Ry. Headquarters, Fresno, Cal.

D. C. Frederick, superintendent of transportation, Chicago, Peoria & St. Louis. Headquarters, Springfield, Ill.

J. B. Galivan, acting superintendent, Los Angeles Division, Atchison, Topeka & Santa Fe Ry. Headquarters, Los Angeles, Cal.

Thomas Gavin, chief train dispatcher, El Paso and Southwestern. Headquarters, Almogordo.

Clarence M. Gearhart, assistant trainmaster, east-end Cumberland Division, Baltimore & Ohio Railroad.

C. L. Hickey, assistant superintendent, Oregon Short Line. Headquarters, Pocatello, Ida.

J. R. Hitchcock, acting general superintendent, Atchison, Topeka & Santa Fe Coast Lines. Headquarters, Los Angeles, Cal.

I. L. Hubbard, acting general manager, Atchison, Topeka & Santa Fe Coast Lines. Headquarters, Los Angeles, Cal.

A. S. Johnson, superintendent, Terminal Railroad Association. Headquarters, St. Louis, Mo.

J. F. Keegan, superintendent, Chicago Division, Baltimore & Ohio Railroad. Headquarters, Garrett, Ind.

D. F. Kirkland, superintendent, Atlanta, Birmingham & Atlantic Railroad. Headquarters, Manchester, Ga.

Harry C. McAdams, terminal trainmaster, Baltimore & Ohio R. R. Headquarters, Cumberland, Md.

E. E. McCarty, acting trainmaster, Atchison, Topeka & Santa Fe Ry. Headquarters, San Bernardino, Cal.

John McNaughton, trainmaster, Erie Railroad and the New Jersey and New York. Headquarters, Jersey City, N. J.

J. Lawrence Matthews, night chief train dispatcher, Baltimore & Ohio Railroad.

G. W. Morgan, assistant superintendent, Chattanooga Division, Nashville, Chattanooga & St. Louis Ry. Headquarters, Bridgeport, Ala.

F. C. Noessel, trainmaster, Kansas City, Mexico & Orient of Texas. Headquarters, San Angelo, Texas.

Michael Nolan, trainmaster, Erie Railroad. Headquarters, Port Jarvis, N. Y.

P. N. Place, acting superintendent, Scranton Division, Delaware, Lackawanna & Western R. R. Headquarters, Scranton, Pa.

F. C. Rand, superintendent of buildings and bridges, Fifth Division, Boston & Maine. Headquarters, Nashua, N. H.

J. M. Scott, superintendent, Monongah Division. Headquarters, Grafton, W. Va.

Ernest G. Shirley, day chief train dispatcher, Baltimore & Ohio Railroad.

F. M. Smith, assistant trainmaster, Seattle Division, Northern Pacific. Headquarters, Seattle, Wash.

H. W. Stanley, general manager, Seaboard Air Line. Headquarters, Portsmouth, Va.

W. C. Steffa, superintendent, car service, Chicago & Alton Road. Headquarters, Chicago.

D. Sullivan, general superintendent, Apalachicola & Northern. Headquarters, Port St. Joe, Fla.

W. J. Thiele, division superintendent, Chicago, Milwaukee & St. Paul Ry. Headquarters, Montevideo, Minn.

Carmie Thompson, general manager, Great Northern and Hill ore properties. Headquarters, St. Paul, Minn.

Thomas W. Walsh, superintendent, Oregon-Washington R. R. and Navigation Co. Headquarters, La Grande, Oregon.

A. R. Woods, acting trainmaster, Second District, Albuquerque Division, Atchison, Topeka & Santa Fe Ry. Headquarters, Winslow, Ariz.

Traffic.

Thos. G. Aspinwall, freight solicitor, Pennsylvania. Headquarters, Buffalo, N. Y.

Harry Beardshaw, traveling freight agent, the Orient. Headquarters, Pittsburgh, Pa.

James Bidmead, agent, Lehigh Valley Railroad. Headquarters, Perth Junction, N. J.

M. S. Boals, commercial agent, Illinois Central. Headquarters, St. Louis, Mo.

H. J. Booth, special agent, traffic department, Wheeling & Lake Erie, and traffic manager, Loraine & West Virginia. Headquarters, Cleveland, Ohio.

Edward Briggs, assistant freight agent, Wheeling & Lake Erie. Headquarters, Cleveland, Ohio.

A. D. Brown, city passenger agent, the Burlington. Headquarters, Cincinnati.

H. Carlton, commercial agent, M. & St. L. Headquarters, Portland, Oregon.

Charles B. Chaffee, agent, Lehigh Valley Railroad. Headquarters, Hector, New York.

George J. Charlton, passenger traffic manager, Chicago & Alton Railroad. Headquarters, Chicago.

F. R. Clark, traveling freight agent, Grand Trunk. Headquarters, Toronto, Ont.

George H. Clark, division freight and passenger agent, Ottawa Division, New York Central & Hudson River R. R. Headquarters, Ottawa, Ont.

J. B. Courtright, city passenger agent, O. W. R. & N. Headquarters, Tacoma, Wash.

S. D. Croft, traveling passenger agent, Grand Trunk. Headquarters, Stratford, Ont.

W. K. Cundiff, assistant general passenger agent, Union Pacific System. Headquarters, Kansas City, Mo.

A. B. Day, traveling passenger agent, Delaware, Lackawanna & Western. Headquarters, Chicago, Ill.

W. L. Donaldson, westbound agent, freight department, Lehigh Valley. Headquarters, Chicago, Ill.

A. E. Doud, traveling freight agent, Traders Dispatch. Headquarters, Indianapolis, Ind.

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George A. Durlan, city passenger agent, New York Central Lines.

A. O. Ellis, traveling freight and passenger agent, W. & L. E.

C. V. Finkle, agent, Lehigh Valley Railroad. Headquarters, South Somerville, N. J.

Harry J. Flynn, soliciting freight agent, St. Louis Southwestern. Headquarters, Louisville, Ky.

R. F. Fox, traveling passenger agent, Colorado & Southern. Headquarters, Denver, Colo.

W. F. Geisert, traveling passenger and freight agent, Baltimore and Ohio Southwestern. Headquarters, Denver.

Joe F. Govan, general agent, Frisco, C. & E. I. Headquarters, Chicago, Ill.

John A. Groves, traveling freight agent, A. B. & A. Headquarters, Kansas City.

M. E. Harlan, traffic department, Northern Pacific. Headquarters, St. Paul, Minn.

Louis P. Harris, traveling passenger agent, Frisco Lines. Headquarters, Cincinnati.

J. I. Hazzard, general western agent, Western Maryland. Headquarters, Chicago, Ill.

B. B. Hickman, freight agent, Terminal Railroad Association. Headquarters, St. Louis, Mo.

G. S. Hinkins, freight soliciting agent, the Southern. Headquarters, Huntsville, Ala.

L. B. Jay, district passenger agent, Cincinnati, Hamilton & Dayton Railway. Headquarters, Indianapolis, Ind.

T. Kight, traveling freight agent, Gulf, Colorado & Santa Fe. Headquarters, San Antonio, Texas.

C. A. King, freight traffic manager, Chicago & Alton R. R. Headquarters, Chicago.

Samuel W. Kirby, ticket agent, Liberty Street, Lehigh Valley Railroad. Headquarters, New York City.

E. L. Kuhne, joint ticket and passenger agent, Wabash and the Minneapolis & St. Louis. Headquarters, Des Moines, Iowa.

H. A. Lawrence, traveling freight and passenger agent, O. W. R. & N. Co. Headquarters, Seattle, Wash.

C. A. Lindsey, city passenger agent, Denver, Boulder & Western. Headquarters, Denver, Colo.

J. D. Lund, commercial agent, the Wabash. Headquarters. Cincinnati, Ohio.

Richard MacSherry, freight solicitor, the Pennsylvania. Headquarters, Easton, Pa.

Albert McCormick, agent, Lehigh Valley Railroad. Headquarters, Girardville, Pa.

D. M. McNamara, district passenger agent, the Alton.

H. R. Mason, traveling freight agent, Toledo, St. Louis & Western Railroad. Headquarters, Pittsburgh, Pa.

W. S. Merchant, district passenger agent, the Frisco. Headquarters, Cincinnati.

John J. Morton, acting assistant import freight agent, Canadian Pacific. Headquarters, Chicago, Ill.

T. A. O'Brien, general freight agent, Texas City Steamship Company. Headquarters, Pier 44, New York.

J. W. Overman, traveling freight agent, Toledo, St. Louis & Western. Headquarters, Kansas City, Mo.

L. G. Paul, division passenger agent, Baltimore & Ohio Southwestern. Headquarters, Chillicothe, Ohio.

W. E. Phillips, traveling freight agent, Toledo, St. Louis & Western Railroad. Headquarters, Pittsburgh, Pa.

Wm. McL. Pomeroy, freight solicitor, the Pennsylvania. Headquarters, New Haven, Conn.

John R. Reich, ticket agent, C. R. R. Station, Lehigh Valley Railroad. Headquarters, Jersey City, N. J.

Opie Reid, traveling freight agent, Rock Island Lines. Headquarters, Lake Charles, La.

Arthur J. Reilly, rate clerk, Southern Pacific.

W. E. Robinson, freight solicitor, Star Union Line. Headquarters, Indianapolis, Ind.

C. M. Ross, traveling freight agent, the Southern. Headquarters, Kansas City, Mo.

W. H. Saunders, soliciting freight agent, Cincinnati, New Orleans & Texas Pacific. Headquarters. Cincinnati, Ohio.

C. J. Scherer, traveling traffic inspector, Cincinnati, New Orleans & Texas Pacific. Headquarters, Cincinnati, Ohio.

Chas. Schoch, contracting freight agent, W. & L. E. Headquarters, Cleveland, Ohio.

Harry P. Sebring, ticket agent. West 23rd Street, Lehigh Valley Railroad. Headquarters, New York City.

E. D. Shenk, general agent, W. & L. E. Headquarters, Cleveland, Ohio.

S. T. Stackpole, freight solicitor, the Pennsylvania. Headquarters, Uniontown, Pa.

Chester A. Stahl, agent, Lehigh Valley. Headquarters, South Bay, New York.

H. C. Stevenson, southwestern passenger agent, Baltimore & Ohio Southwestern. Headquarters, Dallas, Texas.

A. E. Stewart, traveling freight and passenger agent, O. W. R. & N. Company. Headquarters, Vancouver, B. C.

Marshall Taylor, city ticket agent, Chicago, Milwaukee & St. Paul. Headquarters, Portland, Oregon.

Harry V. Wilmot, district passenger agent, Northern Pacific. Headquarters, Milwaukee, Wis.

Albert T. Withiam, agent, Lehigh Valley Railroad. Headquarters, Kendaia, New York.

J. R. L. Wulff, commercial agent, the Southern. Headquarters, Kansas City, Mo.

R. A. Youtman, city passenger agent, the Frisco. Headquarters, Cincinnati.

Industrial.

H. M. Andrews, general land and tax agent, the Erie Railroad, the New York, Susquehanna & Western, the New Jersey & New York, and the Chicago & Erie. Headquarters, New York.

W. R. Beattie, agricultural and industrial commissioner, St. Louis Southwestern Railway Company, and the St. Louis and Southwestern Ry. Company of Texas. Headquarters, St. Louis, Mo.

C. E. L. Bergstrom, assistant industrial commissioner, the Erie Railroad, the New York, Susquehanna & Western, the New Jersey & New York, and the Chicago & Erie. Headquarters, New York.

F. M. Chambers, industrial agent, Tonopah and Tidewater. Headquarters, Los Angeles.

Hugh McNeill, Jr., assistant to tax agent, Baltimore & Ohio Railroad. Headquarters, Baltimore, Md.

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Purchasing.

C. C. Colley, purchasing agent, Louisiana Railway & Navigation Company. Headquarters, Shreveport, La.

G. T. Dunn, storekeeper, Lake Shore & Michigan Southern Railway. Headquarters, Elkhart, Ind.

E. H. Landers, assistant general storekeeper, Lake Shore & Michigan Southern Railway. Headquarters, Collinwood, Ohio.

Miscellaneous.

J. B. Baskerville, acting general claim agent, Norfolk & Western. Headquarters. Roanoke, Virginia.

J. A. Campbell, captain of police, Baltimore & Ohio Railroad. Headquarters, Grafton, W. Va.

W. D. Bassett, superintendent pension bureau, the Frisco. Headquarters, St. Louis, Mo.

William J. Hunter, claim agent, Chicago and Western Indiana Railroad Company and the Belt Railway Company of Chicago.

V. J. Melsted, head of chemistry department. Canadian Pacific. Headquarters, Winnipeg.

W. B. Moss, acting statistician, Norfolk & Western. Headquarters, Roanoke, Va.

Frederick L. Nauyoks, claim agent, Chicago and Western Indiana Railroad and the Belt Railway Company of Chicago.

J. H. Reich, claim department head, Frisco-Gulf Lines. Headquarters, Houston, Texas.

J. A. Selvey, captain of police, Baltimore & Ohio Railroad. Headquarters, Baltimore, Md.

Walter V. Wilson, chief, carriers' accounts division, Interstate Commerce Commission. Headquarters, Chicago.

RESIGNATIONS.

Executive.

Judge Thomas J. Freeman, operating vice-president, Texas & Pacific Railroad.

Robert E. Strahorn, vice-president, Oregon-Washington Railroad and Navigation Company.

Financial.

F. W. Bobbett, cashier, Great Northern Railroad.

Accounting.

A. J. Anderson, auditor traffic accounts, C. H. & D.

L. C. Everett, general auditor, Bangor & Aroostook Ry.

W. C. Logan, auditor, Wichita Valley Railway.

John W. O'Neal, assistant auditor of freight receipts, the Pennsylvania Lines.

Engineering and Mechanical.

Arthur N. Carver, division engineer. San Benito & Rio Grande Valley.

C. Chandler, engineer of bridges and buildings, Chicago Great Western R. R.

R. C. Johnson, assistant signal engineer, Electric Zone and Electric division, New York Central & Hudson River Ry.

W. S. Murray, electrical engineer, New York, New Haven & Hartford.

R. A. Rutledge, engineer, Gulf Lines, of the Gulf, Colorado & Santa Fe Ry.

C. L. Webster, master mechanic, Canadian Northern Ontario Ry.

J. A. Zehner, division engineer, Mahanoy & Hazleton Division, Lehigh Valley Railroad.

Operation.

M. H. Cahill, superintendent, Buffalo Division, Delaware, Lackawanna & Western R. R.

W. H. Danley, superintendent of transportation, Chicago, Peoria and St. Louis.

William Doherty, assistant general manager, New Orleans, Texas & Mexico, and the St. Louis, Brownsville & Mexico.

W. A. Durham, assistant general manager, Missouri, Kansas & Texas.

Arthur J. Grymes, manager of lighterage and foreign freight departments, Erie Railroad.

W. H. Harsh, general manager, Lakeside & Marblehead Railway.

John M. Hoffman, general manager, Missouri, Oklahoma and Gulf.

E. C. Millener, general manager, Cumberland Railway.

E. M. Stanton, superintendent of car service, Chicago and Alton Railroad.

C. B. Wilburn, superintendent. Birmingham Division, Atlanta, Birmingham & Atlantic.

Traffic.

Harry Beardshaw, contracting freight agent, Chicago, Milwaukee and St. Paul Ry.

F. R. Carr, agent, Lehigh Valley Railroad.

P. H. Cates, agent, Chicago & Alton.

R. W. Cook, commercial agent. M. & St. L.

K. W. Curtis, traveling freight agent, Toledo, St. Louis & Western Railroad.

G. E. Garrison, agent, Lehigh Valley Railroad.

W. F. Hite, assistant general freight agent, Chesapeake & Ohio Railway.

G. W. Housley, general agent, Missouri Pacific and the St. Louis Iron Mountain & Southern.

Bernard A. Lepper, agent, Lehigh Valley Railroad.

Abner S. Mann, district passenger agent, Southern Pacific.

J. J. Mann, agent, Lehigh Valley Railroad.

A. B. Schmidt, general agent, passenger department, St. Louis & San Francisco Ry.

W. T. Spicer, traveling passenger agent, Colorado & Southern.

F. G. Sprenger, rate clerk. Southern Pacific.

J. O. Thomas, city ticket agent, Chicago, Milwaukee & St. Paul.

C. E. Wharton, contracting freight agent, Missouri-Pacific Ry.

F. D. Withiam, agent, Lehigh Valley Railroad.

Industrial.

H. H. Wask, division storekeeper, Rock Island.

Harrison Williams, general land and tax agent, Erie Railroad.

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Purchasing.

C. C. Dibble, assistant general storekeeper, Lake Shore & Michigan Southern Ry.

Miscellaneous.

George Bradshaw, general safety agent, New York Central Lines.

George M. Grimes, general claim agent, Chicago and Western Indiana Railroad and the Belt Railway.

C. Horn, captain of police, Monongahela Division, B. & O.

H. R. Lake, chief chemist, Canadian Pacific.

Henry Williams, paymaster, Grand Trunk.

ORGANIZATION.

May Meeting of New York Railway Club.—The regular monthly meeting of the New York Railway Club was held on the evening of May 16th, and was addressed by Mr. Frederick C. Syze, whose paper was entitled: "Thoughts on Discipline."

Ending of Classification Hearings.—The Western Freight Classification Committee, which have been holding daily sessions at St. Louis, during the early part of May, adjourned on the 17th instant, after disposing of all the subjects on the docket. Tariffs will be filed with the Interstate Commerce Commission in due course.

Convention of Railroad Telegraphers.—On May 12th, four hundred delegates attended at Baltimore, the biennial convention of the Order of Railroad Telegraphers, representing a membership of forty thousand in the United States, Canada and Mexico. The sessions continued daily for nearly a week. Among the entertainments arranged for the visitors was a trip to Washington and an excursion on Chesapeake Bay. Governor Goldsborough addressed the delegates at a reception held on the evening of May 12th.

Meeting of Central Passenger Association.—At a meeting of the Central Passenger Asociation, held in Chicago, on May 14th, it was decided that the railroads connected with that organization should continue the present practice of absorbing telegraph expenses incident to handling prepaid orders for passenger tickets. A decision to this effect was reached after a number of the lines connected with the organization objected to the adoption of a plan, submitted some time ago, providing for a charge of one per cent of the price of the ticket for furnishing this service. The present practice has been followed for many years, and the roads which objected pointed out that the proposed change would subject the carriers to criticism.

Applications for low fares to a large number of conventions were disposed of by referring the applicants to the standing rule of the association that no fare shall be granted on a basis of less than two cents a mile in each direction.

Meeting of International Association of Ticket Agents.—A meeting of the Executive Committee of the International Association of Ticket Agents, was held during May at St. Louis. The principal business transacted was the selection for the annual convention, which was decided to be held at Grand Canyon, Ariz., the Santa Fe having offered a special train from Chicago, it being the intention to leave Chicago on March 18, 1914, going direct to Grand Canyon for a three days' session, returning by way of Dallas, San Antonio and Galveston, arriving in St. Louis and spending March 20th there, which will be the termination of the trip and the adjournment of the convention.

Railway Development Association.—The Railway Development Association, representing lines in the United States, Canada and Mexico, have decided to meet next year in Baltimore. W. W. Wood, of Baltimore, was elected president. The May convention was devoted to matters of interest to the industrial, immigration and agricultural departments of the railways, and the program included discussions on the following subjects: "Efficiency of Centralized Power Plants," "Agricultural Development," "Reclamation of Wet Lands by Drainage," and "Immigration Matters." William Nicholson, industrial agent of the Kansas City Southern, is secretary.

Meeting of Railway Surgeons.—Plans for establishing better sanitary conditions on railroads throughout the country, were decided upon May 6th, at the annual meeting of the Association of Railway Surgeons, held in Chicago. A committee was appointed to co-operate with a committee of the American Medical Association assigned to the promotion of public health and railway sanitation. It also was decided to ask the co-operation of State Boards of Health and health officers in various localities with a view of obtaining supplies of pure water and ice for use on railroad trains.

Dr. W. H. Bohart, chief surgeon of the Chicago and Eastern Illinois Railroad, was elected president of the association; Dr. G. G. Dowdall, chief surgeon of the Illinois Central road, vice-president, and Dr. L. J. Mitchell, editor of the "Railway Surgical Journal," secretary.

Storekeepers' Convention.—The tenth annual convention of the Railway Storekeepers' Association, was held in Chicago on May 19th to 21st, inclusive. The subjects of the papers presented, included:

"Reducing Inactive and Disposing of Obsolete Stock"; "Rolling Mills at Railroad Scrap Docks"; "What Effect, If Any, Has a Well-Organized Stores Department on the Operating Cost of a Railroad?" "Specifications for and Testing Materials and Effect on Storekeepers' Stock"; "Ice, Proper Method of Storage, Disbursement, Shrinkage and General Handling on Railroads"; "Standard Storehouse"; "Standard Stationery Storehouse"; Standard Supply Car"; "Standard Scrap Dock and Reclaiming Machinery." Reports were received from the Committee on Recommended Practices, Committee on Accounting, Committee on Piecework, Committee

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on Standardization of Tinware, Committee on Stationery, Committee on Uniform Grading and Inspection of Lumber, Committee on Scrap Classification and Committee on Membership. A special committee had been appointed to prepare and submit for adoption a book on standard rules governing store department practices.

Canadian Demurrage Plan.—The Canadian Manufacturers' Association, representing most of the large shippers of Canada, is preparing an application to the Board of Railway Commissioners for an order approving and making effective the average demurrage plan on all the Canadian roads under the jurisdiction of the board. There is a widespread demand for the adoption of the plan.

Organization of a National Safety First Association.—The National Railway Safety First Association was formed at a meeting of the superintendents of the safety departments of various railroads at Chicago, on April 22nd.

The organization, which will include the heads of the safety departments of every railroad between the Panama Canal and the northern limits of the continent, has for its object the interchange of ideas to prevent loss of life and injury to passengers, employes and trespassers.

Motion picture entertainments, lectures, the posting of flaring bulletins, and newspapers will be enlisted to aid in reducing the loss of life and injury to a minimum.

The meeting was called by A. W. Smallen, head of the safety department of the Chicago, Milwaukee and St. Paul Railroad. Representatives from the following lines met the Chicago committee: New York Central and Lackawanna, from New York; Baltimore and Ohio, from Baltimore; Oregon Short Line, from Salt Lake City; Union Pacific, from Omaha; El Paso Southwestern, from El Paso; Missouri, Kansas and Texas, Wabash and Frisco Lines, from St. Louis, and Northern Pacific, from St. Paul.

Travel and Vacation Exhibition.—A number of prominent railroad presidents, including W. H. Truesdale, Delaware, Lackawanna and Western Railroad; Sir Thomas G. Shaughnessy, Canadian Pacific Railway Company; Louis Hill, chairman board, Great Northern Railroad; W. C. Brown, president New York Central lines; Howard Elliott, Northern Pacific Railroad; S. M. Felton, Chicago Great Western; Hon. Frank Cochrane, minister of railways for Canada; B. D. Caldwell, president Wells-Fargo Express Company; George W. Goethals, president Panama Railroad; E. Pennington, president Soo Railway; E. N. Brown, president National Railways of Mexico, and E. C. Schaff, president Missouri, Kansas and Texas Railway, are acting as honorary vice presidents of the Travel and Vacation Exhibition, which is to be held in the New Grand Central Palace in New York City in March, 1914. This exhibition is given with the view of encouraging the public to travel and disseminating information as to where to go, when to go, how to get there and where to stop. Many railroads, steamboat and steamship lines have taken space and are illustrating by popular demonstration the beauties and points of interest along the different lines or at terminals.

The exhibition is to be an international one and a number of foreign railroads will participate. Louis W. Hill has arranged to have a number of Blackfeet Indians from the Glacier Park reservation to attend and has secured government permission for their removal from the park to the exhibition.

Annual Convention of the Traveling Engineers' Association.—The twenty-first annual convention of the Traveling Engineers' Association will be held at the Hotel Sherman, Chicago, Ill., commencing Tuesday, August 12, 1913, and continuing four days.

The subjects to be discussed are as follows:

SUBJECTS:

1.—"Uniform Instruction to Enginemen on the Handling of Superheat Locomotives,"—J. V. Hardy, Chairman.

2.—"Credit Due Operating Department for Power Utilization and Train Movement that Reduces the Consumption of Fuel per Ton Mile,"—M. J. Howley, Chairman.

3.—"The Care of Locomotive Brake Equipment on Line of Road and at Terminals, also Methods of Locating and Reporting Defects."—H. A. Flynn, Chairman.

PAPERS:

1.—"Advantages Obtained with the Brick Arch in Locomotives,"—LeGrand Parish.

2.—"What Can We Do to Eliminate the Black Smoke Evil on Locomotives?"—J. H. Lewis.

3.—"Scientific Train Loading—Tonnage Rating. The best methods to obtain maximum Tonnage Haul for the engine over the Entire Division, taking into consideration the grades at different points on the Division,"—S. O. Heyer, Jr.

Indications are that the twenty-first annual convention will be a record-breaker.

International Engineering Congress.—In connection with the Panama-Pacific International Exposition which will be held in San Francisco in 1915, there will be an International Engineering Congress, in which engineers throughout the world will be invited to participate.

The congress is to be conducted under the auspices of the following five National Engineering Societies: American Society of Civil Engineers, American Institute of Mining Engineers, The American Society of Mechanical Engineers, American Institute of Electrical Engineers, and the Society of Naval Architects and Marine Engineers.

Entertainment of Chicago Traffic Club.—The Traffic Club, of Chicago, held one of the most successful entertainments in its history on Wednesday evening, May 14th, in the Red Room of the LaSalle Hotel, winding up the season's indoor entertainment program with a stag, smoker and cabaret show, consisting of eight acts. Light refreshments were served about 9 o'clock. Over 400 members and their guests attended. Among the out-of-town guests present were: H. C. Wilson, vice-president, Minneapolis Traffic Club; J. T. Johnson, president, Pittsburgh Traffic Club; H. Billings, president, Philadelphia Traffic Club; N. J. Elliott, president, Baltimore Traffic Club; W. C. Brown, secretary, Traffic Club of New England; F. C. Maus, vice-president, Louisville Traffic Club.

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Meeting of the New Jersey Traffic Club.—The last meeting of the Traffic Club, of Newark, N. J., was held at the Washington, on Monday evening, May 5th. Charles A. Swope, General Eastern Freight Agent of the L. & N. R. R., and Secretary of the Traffic Club of New York, spoke on Traffic Clubs, their success, and the recognized good they have done.

The closing address was by Mr. George H. Pride, president and general manager of the Auto Transportation Company and a member of the Club. Mr. Pride is one of the early pioneers and in the comparison between horse and motor hauling, spoke of the many advantages and the few disadvantages of the more modern method.

Convention of Railway Fuel Association.—The fifth annual convention of the International Fuel Association was held in Chicago on May 21st to 24th inclusive. On the opening day after addresses by the president and by R. H. Ashton, vice-president of the Chicago and Northwestern, there was presented a paper on "Standard Form of Contract Covering Purchase of Railway Fuel Coal" and one on "Sub-Bituminous and Lignite Coal as Locomotive Fuel," followed by discussions. On May 22nd, there was a paper and a discussion on "Location, Construction, Development and Operation of a Bituminous Coal Mine" and the report of standing Committee on Firing Practice. On May 23rd, there was a paper and a discussion on "Self-Propelled Railway Passenger Cars" and on "Modern Locomotive Coaling Station: Its Design, Construction, Operation and Maintenance."

On May 24th, there was a paper, followed by a discussion on "Scaling of Locomotive Boilers and Resultant Fuel Loss," the report of standing Committee on Constitution and By-Laws, report of special committees, election of officers and the report of the Executive Committee on selection of subjects presented at the current meeting for discussion.

Spring Meeting of American Railway Association.—The spring meeting of the American Railway Association was held in New York on May 21st. Reports were presented by the committees as usual, including one from the Joint Committee on Automatic Train Stops, Transportation of Explosives and other Dangerous Articles; the Committee on Electrical Working and the Committee on Nominations.

Convention of Railway Claim Agents.—The annual convention of the Association of Railway Claim Agents was held in Baltimore on May 21st. The program was arranged by C. W. Egan, general claim agent of the Baltimore & Ohio. The address of welcome was made by Mayor Preston, followed by an address by James A. C. Bond, of Westminster, solicitor of the Baltimore & Ohio, on "The Relation Which the Claim Agent Bears to Other Departments of the Railroad Service and to the Public."

Ralph C. Richards, general claim agent of the Chicago and Northwestern, followed with an address on "The Revolution of the Railway Claim Department." The status of the workingmen's compensation laws in effect in the United States and Canada was discussed by the heads of the claim departments of a number of the leading railroads.

Pending compensation acts were discussed by L. M. Smith, claim agent of the St. Louis and San Francisco. The safety first movement and its relation to the prevention of accidents to patrons and employes was discussed by B. C. Winston, assistant attorney, Wabash, and C. W. Egan, general claim agent of the Baltimore & Ohio. Statistics of the results of the campaigns of safety which have been conducted by the American railroads were presented to the convention by A. A. Krause, general claims attorney, Missouri, Kansas and Texas, and the cooperation between the claims and safety departments was talked about by G. E. McCaughan, general claims attorney of the Rock Island. The trespassing evil and remedial methods was brought before the convention by W. P. Williams, claim agent of the Chicago, Rock Island and Pacific, and W. O. Reeder, district claim agent of the Missouri Pacific.

Annual Meeting of National Industrial Traffic League.—The annual meeting of the National Industrial Traffic League, was held in Buffalo on May 23rd and 24th. The meeting was to have been held in April, but was postponed on account of floods in Ohio and Indiana. The association is composed of shippers throughout the United States and has been a potent factor in the determination of many rate controversies. The following subjects were taken up for consideration:

"Bills of Lading—Uniform and Standard," "Bills Relating to Bills of Lading—(Congress"; "Uniform Classification," "Shippers' Evasion of Interstate Commerce Law," "Federal Jurisdiction Over Larceny of Interstate Shipments," "Interpretation of Demurrage Rules," "Incomplete Expense Bills," "Weights to Govern in the Assessment of Freight Charges," "Railroad Rules as to Storage of Freight," "Export Demurrage and Storage Charges," "Proposed Increase in the Demurrage Rate," "Appointment of Demurrage Supervisors," "New Form for Preparation of Claims," "Notice to Shippers of Refused and Unclaimed Freight," "Payment for Tariff Publications," "New Form of Bill of Lading and Waybill Combined, Introduced and Now Being Urged by the Pennsylvania Railroad." Reports —Finance Committee and secretary-treasurer, Freight Claims Committee, Transportation Instrumentalities Committee, Baggage Committee, Organization Committee.

Convention of Association of Railway Telegraph Superintendents.—The annual convention of the Association of Railway Telegraph Superintendents was held in St. Louis on May 20th. Papers were presented on "Some Facts Concerning Telephone Transmission," by Elam Miller and Charles A. Robinson, both of the American Telephone and Telegraph Company, New York; "Use of Telephone by Railroads for Dispatching Trains, Handling Messages, etc.," by J. C. Johnson, superintendent of telegraph, Pennsylvania Railroad; "Inductive Disturbances as Affecting Telegraph and Telephone Circuits," by F. J. Howe, Western Union Telegraph Company.

On May 21st, the papers comprised "Protection Against Lightning and High Currents for Telegraph and Telephone Equipment," by M. H. Clapp, superintendent of telegraph, Northern Pa-

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cific; "Main Line Power for Selective Circuits, Including Transmission and Signaling," by Richard F. Spamer, Western Electric Company; "Full Use of Wires," by H. D. Teed, superintendent of telegraph, St. Louis and San Francisco; "Organization for Maintenance of Lines," by M. C. Allen, Western Union Telegraph Company.

On May 22nd there was a paper on "Organization for Wire Chiefs and Telephone Inspectors," by J. B. Sheldon, superintendent of telegraph, Union Pacific.

Convention of Order of Railway Conductors.—Approximately five thousand delegates attended the biennial convention of the Order of Railway Conductors, held in Detroit, Mich., on May 12th. A. B. Garretson, president of the Order, declared in his address to the opening session that, in his belief, the referendum vote of the railroad employes of 48 eastern lines, now being taken, would result in favor of a strike unless salary increases of 20 per cent are granted.

LEGISLATION.

National.—Last month attention was called to the dominating influence of labor in the passage of class legislation, such as the full crew bills of New York and New Jersey. Within the past few days another and more glaring evidence of this pernicious influence has been manifested at the National Capitol, in connection with certain riders attached to the Sundry Civil Appropriation Bill, which excludes labor organizations from the effect of the Sherman Anti-trust law. In other words, the riders forbid the Department of Justice to enforce the Sherman law against labor unions or organizations of farmers, and have thus granted immunity to half the population of the country to set at naught a most important federal statute. As the bulletin of the Merchants' Association of New York puts it: "The rider of the bill says in effect: 'This is a law and whoever fails to obey it, is a law breaker; but if farmers or workingmen break it, they shall not be punished for their crime.'" It would hardly be possible to conceive a more ill-advised method of attempting to nullify the statute. If the Sherman law ought not to apply to farmers and workingmen, it should be strongly amended to exempt them from its provisions. Such a change would be bad, but to license law breaking is infinitely worse, since it brings law into contempt. President Wilson has been petitioned by some of the largest organizations of the country to refuse to sign this bill with such riders attached, and in fact general indignation has been shown editorially in many quarters by the press of the country. All protest, however, has been of no avail.

Senator Root in combating the proposed legislation, said in addressing the presiding officer of the Senate:

"Let me ask you, sir, how will this present itself to the multitude of our citizens not included in these excepted classes? How can we fail to create a sense of injustice? How can we fail to create opposition to law, to create a feeling that it is right for men themselves to assert and to exercise the same freedom that is given to their neighbors? I can conceive of no more fatal blow to the enforcement of the statute than the law which exempts approximately half the people from responsibility for obedience to it, for you cannot enforce a law, sir, which is not an equal law for all the people. You cannot get juries to indict and to convict one man for doing what is permitted to his neighbor under the same law. If we attempt to retain the principle, to retain the declaration of illegality and exempt a part of the people from responsibility for obeying it we bring the law into necessary contempt and make it impossible to enforce it. We have a responsibility not to the laboring man alone, not to the farmer alone. We have a responsibility to the peace and order of our country."

Senator Lewis, the new Senator from Illinois, has drafted a bill providing for the establishment of a national wage committee, which would act as arbiter in questions involving wages. It would permit the President to appoint, "by and with the consent of the Senate," one citizen in each Congressional District, to serve as "wage commissioner" in the district named. The compensation for these commissioners would be $4,000 per year for an appointment of four years.

The bill, as referred to the committee on Interstate Commerce, would give the following authority to the commission:

That every institution, corporation, association or person, or existing thing or organization of any nature, exercising rights or enjoying privileges or existing by, through or under any law of the United States, or any institution, corporation, organization, association or person of any nature whatever, engaged in any form of interstate commerce, or interstate business, or interstate transportation, or any form of business connected with or having to do, in its nature, with interstate business of any nature whatsoever, in the United States, shall be and are, the subjects of this law.

Senator Cummins has drafted a bill creating a trade commission which shall examine into the business of corporations doing an interstate business for the purpose of finding out whether the anti-trust law is violated. The bill is based upon what is understood to be the doctrine of the Progressive Party for controlling corporations.

According to the Cummins measure, the commission is to be composed of three members appointed by the President for a term of nine years. The Bureau of Corporations is to be merged with the commission and reports are to be made to Congress and not to the President, as is the case with the present bureau. The commission is to have the power to subpoena and examine witnesses under oath and to require the production for examination of all documents, contracts, memoranda or other papers relating to commerce in which a corporation is engaged.

The trade commission is to be given the power to determine whether a corporation is employing capital to such an extent as to destroy or prevent substantially competitive conditions. If this fact is found and the corporation does not cease the practices objected to within a period set by the commission, the commission may present in facts to the Department of Justice, or may upon its own initiative institute a suit in equity against the corporation.

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The Senate Territories Committee, have held hearings during the month on the Alaska Railway situation.

Several bills proposing a government bond issue to build railways are before the Committee, and one will be reported to the Senate before the end of this season. Government ownership or lease of the roads constructed, route, and other questions upon which Alaskans disagree, have been put aside, and an effort will be made to get the bill authorizing the railroads through Congress as soon as possible.

Senator Thomas has introduced a bill in the Senate providing new regulations regarding railroad tickets. The purpose of the measure is to remove all restrictions on transfers of tickets from the original purchasers to others. The bill will fix the penalty for refusal to honor such tickets at a sum not exceeding $50, together with responsibility in a civil action to any person injured or delayed by such refusal.

In the House, Chairman Alexander of the House Committee on merchant marine and fisheries, has introduced a resolution asking for the continuance of the appropriation in the shipping trust investigation. This continued appropriation is asked for, not only for the purpose of holding any more hearings, but to complete the report now in the course of preparation from which it is hoped remedial legislation may be devised. It is unofficially understood, that the report which is now being drafted, will recommend that a measure of continuance for the pooling or conference idea shall be allowed, subject to and on condition of strict government oversight of the operation of such combinations. Those who are in charge of the work, are said to be convinced that unregulated competition will result in the destruction of the regularity of sailings, in faulty distribution of tonnage, so that more harm to shippers would be wrought than good done to them through occasional reductions of rates in their favor. A resolution has been introduced in the House by Representative Neeley, of Kansas, which directs the Attorney-General to proceed against the Missouri Pacific Railway to collect $3,630,000 as repayment for money advanced by the government in financing the original road between Hannibal and St. Joseph, Mo. Representative Neeley insists that the $1,600,000 advanced by the Government should be repaid with interest.

Representative Dallin, of New York, has introduced a bill in the house to compel railroads to issue interchangeable mileage books, good on all lines, without any time limit restrictions and at the maximum rate of two cents a mile. The books would be in 500, 1,000 or 5,000 mile lots and the purchasers would be entitled to baggage privileges.

Connecticut.—The House of Representatives has passed a resolution to appoint a committee to investigate affairs of the New Haven road in that State.

Illinois.—A bill has been passed in the Senate, by a vote of 38 to 6, prohibiting the members of the legislation from riding in the future on railroad passes. This is the third time during the past six years the Senate has passed an anti-pass bill. The measure usually has been smothered in the House Committee. There appears more likelihood of its final passage on this occasion, however, since thirty-five States have enacted similar laws and the popular sentiment against the employment of passes in this manner, is very strong. Railroad officials who have recently been fighting objectionable bills now before the State Legislature, are hopeful of some measure of success, and believe that the full crew bill and the electric headlight bill, will not be reported favorable. It is probable, however, that the bill for semi-monthly pay days will win.

A bill has been introduced into the Legislature to amend the present union station statute, adopted in 1874, to provide that companies formed for the purpose of building union stations may be organized with a capitalization not to exceed $50,000,000. The present limit is $3,000,000. The bill was introduced in the interest of the proposed new stations in Chicago.

On May 14th, the initiative and referendum resolution was defeated. It received 101 votes, just one vote short of the necessary two-thirds.

Massachusetts.—The Committee on Railroads has voted to report a bill based on the petition of the Boston & Maine Railroad "for legislation to authorize it to operate four tracks through the city of Salem and to electrify its railroad between the cities of Boston and Beverly."

The sub-committee of the Railroad and Ways and Means Committee, held a conference recently with the railroad commissioners and Bank Commissioner Thorndyke concerning the pending railroad control bill. It was suggested to the sub-committee by the board that an amendment to the present bill be offered with the idea of safeguarding the investments of savings banks in the securities of the Boston & Maine and the New Haven, by providing that future issues, before they can become legal for savings bank investment, must be first certified as to legality by the railroad commissioners.

Uniform railroad regulation was discussed during the past month, with the Massachusetts Legislative Committee on railroads by representatives of all the New England States except New Hampshire, the delegations constituting the New England Conference on Transportation, recently appointed by the Governors of the several States.

The meeting, which was private, was called by Governor Baldwin, of Connecticut, chairman of the governors' Conference. The States were represented as follows: Maine, Franklin W. Cram, Bangor, Charles H. Osgood, Lewiston; Vermont, William B. Howe, Burlington, Percival H. Clement, Rutland; Massachusetts, Marcus P. Knowlton, Springfield, Francis T. Bowles, Boston, Gov. Foss; Rhode Island, William C. Bliss and Marsden J. Perry, Providence; Connecticut, George M. Woodruff, Litchfield, Costello Lippett, Norwich.

Governor Foss has signed a bill which assures one full day of rest each week to employes in industrial and mercantile establishments throughout Massachusetts. Exceptions are made in the cases of newspaper workers, janitors, bakers, drug clerks and persons caring for fires and machinery.

Michigan.—Border state control for all railroads operating in Michigan is advised by the joint legislative committee of that State, which has been investigating alleged irregularities in

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the management of the Pere Marquette Railroad, now in the hands of receivers.

The report attributes the present difficulties of the Pere Marquette to mismanagement and stock manipulation. The committee's report says that the present receivership is capable, and should be given more power with which to regulate the service and to demonstrate whether the road can be operated upon a paying basis.

The committee says that the charges of "watered stock" have been proved to be without foundation and that all owners of bonds have just claims against the road.

Missouri.—The railroads have decided to submit the full crew bill to the people through a referendum which will prevent it becoming effective until next election.

The 47th general assembly passed and the governor signed a bill requiring foreign railroads to incorporate under Missouri laws. The governor declared that it would apply only to railroads hereafter entering the State and that, if it aimed at present foreign roads, it is unconstitutional, because it leads to an impairment of contract.

New Hampshire.—The State Senate has passed unanimously, the House bill authorizing the Public Service Commission to prepare a new schedule of railroad rates and fares.

The House passed, 283 to 56, a measure authorizing a bond issue of one million dollars for three East and West trunk line State roads from Marlow to Portsmouth, from Dover to Claremont and from Ossipee to Lebanon.

New York—The Foley-Walker workingmen's compensation bill, advocated by the State Insurance Department, but opposed by the State Federation of Labor, has been vetoed by Governor Sulzer. In his veto measure he says:

"I feel convinced that the objections urged against this bill are serious and substantial, and among them may be mentioned that the bill does not eliminate, or reduce to the lowest possible minimum, the waste of litigation which is the crying evil under the present system."

The bill introduced by Senator Cullen calling for extensive improvements in New York water front terminal facilities, has been signed by the Governor.

The new law places sweeping powers in the hands of the Board of Estimate, it being allowed to buy or lease water front property and take charge of water front improvements.

The main feature of the bill provides for the linking together of all the trunk lines entering New York into one big freight terminal. It also provides for the construction of warehouses, elevators and piers.

Governor Sulzer has disapproved the bill amending railroad law relating to conveyance of railroads and their franchises. In a memorandum he says:

"The purpose expressed in this bill of protecting the minority of dissenting stockholders, by requiring that if a road be sold to a parent company, its stock be appraised as provided by Section 17 of the stock corporation law, is worthy of approval.

"The difficulty with this bill is in the sentence, franchises, rights, powers and duties of the grantee company as a railroad corporation in this State, shall, after such conveyance, be extended so as to include and shall be exercised and observed, in relation to the railroad or part thereof so acquired.

"The bill vests the franchises and rights of the grantor corporation in the grantee corporation. We are familiar with mergers and consolidations, but it can not be deemed good policy to allow a number of other corporations having unlimited franchises to acquire the physical property of other corporations, or to be absorbed by other corporations with the franchises pertaining thereto; over which by aid of this act, such franchises will automatically extend."

Governor Sulzer has disapproved Assemblyman Hammer's bill amending the railroad law in relation to the establishment of stations and the stopping of trains thereat. In a memorandum accompanying his veto, the Governor says:

"This bill inserts in the railroad law a new section the purpose of which is to require the establishment of railroad stations on steam railroads in the borough of the Bronx, city of New York, and the stopping at such stations of all trains which pass through such borough on said railroads.

"The bill is absolutely unnecessary for the reason that the public service commission law confers power upon the Public Service Commission, after an examination and investigation, to regulate the matter of stations and the stopping of trains thereat."

Pennsylvania.—By a vote of 136 yeas to 48 nays, the House of Representatives adopted a resolution to submit to the voters a constitutional amendment providing for the initiative and referendum. There has been reported out of the railroad committee of the State Assembly a bill which railroad managers feel is seriously detrimental to public interests, and concerning which the public should be fully advised.

The bill provides that no person may be employed as conductor, brakeman, or engineer or fireman upon any railroad in the State of Pennsylvania unless he has been similarly employed for eighteen months and on the same railroad for three months previously to his appointment.

The bill, while it is called a safety measure, is really intended, the railroads claim, to make impossible the operation of a railroad in case of a strike affecting higher grades of employes.

At the present time, on the Pennsylvania Lines, East of Pittsburgh, the average service of a fireman before promotion to engineman is six to eight years; trainman before promotion to flagman is two to three years; freight flagman before promotion to freight conductor is six to seven years; passenger brakeman before promotion to passenger conductor is fifteen years, or more; these men usually passing through the grade of baggageman.

The provision in the bill that the last three months' service immediately preceding promotion shall be on the railroad on which he is to be appointed, is clearly intended to prevent the employment of men in case of emergency, notwithstanding the fact that they may be fully competent to perform the duties required of them.

Rhode Island.—Governor Pothier has vetoed the bill which would have permitted the lease of the Southern New England Railroad to the

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Central Vermont Railway for a term of 99 years. The Governor said that the terms of the lease were not given and that he had been advised that it would take the property of the proposed line out of control of the State.

LEGAL.

Recent Supreme Court Decisions.—The Supreme Court of the United States adjourned on May 5th, without deciding the Minnesota rate cases. The Court on April 25th, however, allowed the State of Minnesota the right to file a brief in answer to the Government's brief in this case. It is chiefly contended that the Shreveport case which was used in the Government's brief, does not apply to the Minnesota case, and that the main issue in the Shreveport case is, may the Federal Court require the lowering of the Interstate rate to meet a low and reasonable intrastate rate prescribed by State authorities and acquiesced in by the carrier. In the Minnesota case it is claimed there is challenged the right of a State to establish a system of intrastate rates presumptively reasonable in themselves and having no reference to interstate commerce.

The Supreme Court has also granted an extension of time in which the Union Pacific Company must dispose of its 46 per cent in the Southern Pacific stock. This extension, however, is only from May 12th to July 1st, thus, only partially complying with the request of the Union Pacific attorneys for an indefinite extension of time.

The most important recent decision of the Supreme Court to the railroads, was one handed down on April 28th, in which the Court laid down the general principle that a creditor of a corporation, not a party to its reorganization, may hold its successor for its debt. In this specific case the court 5 to 4, in a decision which Justice Lurton, who dissented, declared "was alarming," held the Northern Pacific Railway Company responsible for $125,000 judgment against the Northern Pacific Railroad Company, despite the fact that the court expressly stated that no moral wrongdoing was to be found in the reorganization.

The Court held that the reorganization of the Northern Pacific in 1896 did not relieve the new company of the debts of the old corporation.

"When Boyd found the property in the same hands after the reorganization as before, he had a right to get the property for the payment of the debt, even though there had been a judicial sale," declared Justice Lamar. He held that although there had been no moral flaw yet the decree of sale of the property from the old Northern Pacific Railroad Company to the new Northern Pacific Railroad Company was void as to a non-consenting creditor.

Justice Lurton, in dissenting, held that the reorganization was not a mere transfer of the property of the Northern Pacific Railroad stockholders to themselves as stockholders of the Northern Pacific Railway, but was an effort of the stockholders to save the property in a situation where the property had gone into the hands of a receiver and where conditions were steadily growing worse. Therefore, he added, the sale should stand as valid against any one who, years after the sale, came forward to attack the act to save the property. Judge Lurton said the effect of the decision upon railroads reorganized about the time the Northern Pacific "was alarming."

Corporation lawyers who heard the decision declared it was a direct blow at the practice of reorganizing corporations to get rid of onerous contracts or to escape payment to unsecured creditors. The effect, the lawyers thought, would be far-reaching.

The Supreme Court has declared unconstitutional the Oregon reciprocal demurrage statute of 1907, without opinion, further than announcing that the action was based on the authority of the Hardwick grain elevator case. In the latter case, the Court held the Minnesota reciprocal demurrage law invalid, because it interfered with interstate commerce.

In a decision handed down May 12th, the Supreme Court declared that shippers who dictate railroad routes for their freight are entitled to recover from the initial carrier when freight is damaged on a connecting line. The decree was made in a suit of the Dixey Tobacco Company against the Norfolk and Western Railway and had previously been decided against the road by the Virginia Court of Appeals.

Attorney-General Felder, of Georgia, has procured from the Supreme Court an order for the Fifth United States Court of Appeals to send up for review its decision that the Louisville & Nashville Railroad Company and the Atlantic Coast Line Railroad Company, were not to be taxed upon property leased for ninety-nine years from the Georgia Railroad.

The Missouri, Kansas and Texas Railway has appealed to the Supreme Court in a suit brought against it by L. C. Cade, a track repair laborer, the question at issue being a statute of Texas which allows attorney's fees on claims for labor which are not paid within thirty days. In Cade's case, a claim for $10, the attorney's fees amounted to about $9, whereas the costs of the court were only 50 cents. The case comes direct from the court of the Justice of Peace, in Oak Cliff, Dallas County. The railroad fare of one attorney from Dallas to Washington is over $40.

The railroad company contested Cade's claim, first on the ground that it did not owe the money, and second, on the ground that the provision for attorney's fees conflicted with article 14 of the federal constitution. Appeal was taken direct to the United States Supreme Court, for the reason that for cases of this kind there is no appeal in the State courts from the decision of the Justice's Court. The grounds of unconstitutionality under the federal constitution made it possible to appeal to the highest court of the land.

The constitutionality of the federal hours of service law for railway telegraph operators, has been attacked in a petition filed in the Supreme Court by the St. Louis Southwestern Railway Company of Texas for a review of its convictions for violating the law. The railway had its day operators work from 7 A. M. to noon and, after an hour's rest, from 1 P. M. until 6 P. M., with like hours for night operators. It contended the law merely forbids "continuous" service of more than nine hours.

Commerce Court Decisions.—The Commerce Court has recently handed down two important

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decisions sustaining the Interstate Commerce Commission.

In one case the Court sustains the right of the Commission to subordinate orders of the State Commissions, when such orders affect the interstate rates. The findings of the Commerce Court in the latter case sustain the Sanborn decision in the well known Minnesota rate cases, now pending before the United States Supreme Court for final adjudication.

If the Supreme Court sustains the Sanborn decision it means practically the elimination of State Railroad Commissions. The decision by the Commerce Court is regarded as a most encouraging development in favor of the contention of the railroads in the Minnesota rate cases.

In the so-called "Shreveport case" decision is an affirmation of the power of Congress and the authority of the Commission to remove a discrimination caused by State rates which are very much lower than reasonable interstate rates.

The Commerce Court held that the Interstate Commerce Commission had authority to correct the discrimination in interstate rates resulting from lower State rates being in effect between points similiarly situated. Judge Mack concurring in the decision held that if the roads had not acted voluntarily in putting the State rates into effect, but had been forced to such action by State authority, he could not have agreed with the majority of the Court.

The decision of Court says: "In the last analysis this claim of coercion would seem to beg the question to be decided. since it assumed that the petitioner is bound at all events to observe the rates fixed by the Texas Commission, although the order brought to be enjoyed justifies the application of higher charges. But if the action of Texas Commission regarding these intrastate rates is in derogation of the regulating power of Congress, the petitioner is not bound by that action but has the right to readjust its schedules in conformity with the order of the Interstate Commerce Commission."

Furthermore, it was pointed out that the order of the State Commission fixing lower State rates was to give an undue advantage to the industries in that State, which, the decision says, encroaches upon the field in which federal authority is exclusive and supreme. To hold otherwise in this case is virtually to admit that the purpose of the federal act may be thwarted and its operation made ineffective by the laws and administrative effort of the State of Texas.

In the other case decided by the Commerce Court—that of the Lehigh Valley Railroad against the Commission—the Commission made an order reducing the rates on anthracite coal transported by the railroad from the Wyoming region in Pennsylvania to Perth Amboy, this being the so-called "Meeker case." The railroad appealed, contending that, although the reduction was only a part of the freight it carried, the effect of such reduction would be to cut down the income on the investment value of its whole property to approximately four per cent on an alleged valuation of $312,000,000 and that it was therefore a confiscatory order. The carrier claimed that eight per cent was reasonable profit.

The Court held that, inasmuch as the Commission confined itself to consideration whether the rate charged between the points named on a single commodity was just and reasonable, the carrier could not say that, because the rate on such single commodity was reduced to a point which would result in the income of the whole road being reduced to four per cent approximately, a case of confiscation was made out. The decision then continued:

"The Court further holds that it cannot lay down general rules as to which is just compensation secured by the constitution to a carrier, inasmuch as the question of what is a reasonable rate is one for the Commission to determine and where a profit is being made there is no right on the part of a carrier to earn any fixed percentage of profit on its investment, regardless of whether a rate is or is not reasonable."

The Commerce Court has dismissed the appeal of the Kansas City Southern Railroad from an order of the Interstate Commerce Commission, establishing a uniform system of accounts for railroads and a classification of expenditures on betterments. The Court held that it had no power to interfere with the orders of the Commission prescribing bookkeeping methods and a "classification" may be reviewed only if unreasonable.

Arguments in the so-called tap line case, which has attracted country-wide attention will be presented to the Commerce Court in Washington, June 3d, next.

Four Railroads Indicted for Rebating.—Five indictments charging rebating and discriminating in sixty-three counts, have been returned against four railroads and a coal company by the Federal Court Jury at East St. Louis. The indictments set forth instances wherein it is alleged the laws were violated by the Vandalia; Cleveland, Cincinnati, Chicago and St. Louis (Big Four); Chicago, Indiana and Southern—the Grand Trunk Railroad, and the O'Gara Coal Company.

The penalty that may be imposed for violating the Elkins law in case of conviction is a minimum fine of $1,000 on each count and a maximum of $20,000 for each count, or $1,260,000 for the sixty-three counts.

Alabama Reduced Fare Enjoined.—The Federal District Court at Huntsville, Ala., on petition of attorneys representing the Louisville and Nashville Railroad, have issued an order restraining the Alabama Railroad Commission from requiring the railroad to reduce its passenger fares from 3 to 2½ cents per mile until the question can be presented to three federal judges, as provided by statute. A bond of $25,000 is required of the railroad and some plan for repaying passengers in event the Railroad Commission is eventually upheld in its order for a reduction of fares must be devised. A statement from the general passenger agent was presented to show that the reduction would cost the railroad $146,000 a year.

Appeal in West Virginia Two-Cent Fare Case.—The West Virginia Supreme Court having refused an appeal of the Norfolk and Western Railway in the two-cent passenger rate case, the Circuit Court has granted a stay of thirty days to allow an appeal to the United States Supreme Court.

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Towermen Win Appeal.—The United States Court of Appeals at New Orleans, has decided that the laws governing hours of labor for employes apply to tower men as well as train crews and telegraph operators. The decision is expected to influence other courts throughout the country.

The test case was that of the Houston Terminal Company, charged with working its towermen on 12-hour shifts. The defense was that the law did not apply to this class of employes, who merely telephoned orders from one tower to another. This contention was sustained by the Circuit Courts of Texas and later appealed by the tower men who declare that their responsibility extends far beyond the mere transmission of train orders.

Reduction in Colorado Coal Rates Appealed.—The Colorado and Southern, the Chicago, Burlington and Quincy and the Union Pacific railroads have filed an appeal in the district court of Colorado from the decision of the Railway Commission in renewing an order of February, 1912, which had been issued by the Commission two years previously, reducing the freight on coal from the northern Colorado coal fields to Denver.

Baltimore and Ohio Bond Case Decided.—The Maryland Court of Appeals at Annapolis has handed down a decision holding that the Baltimore & Ohio Railroad is not subject to the Public Service Commission as to the financing of the system in respect to determining the aggregate amount of its capital stock bonded indebtedness, the price at which it shall be sold, or where or how the money realized from the sale thereof shall be expended.

There were four appeals in two cases relating to the sale of $63,500,000 in bonds and also a large amount of long term notes. The railroad company contended that its financing was not subject to the supervision of the Commission on the ground that its charter antedated the creation of the Commission. Counsel for the Commission made the point that the railroad company was required to obtain the Commission's approval of its financing and that the granting of the approval would be such a benefit to the railroad company as would waive its State tax exemption.

"In accordance with the foregoing conclusions these cases will be remanded to the Circuit Court No. 2 of Baltimore City without either affirming or reversing the degree appealed from, in order that the decree entered by the said court on the 25th day of February, 1913, and the 7th day of March, 1913, may be modified according to the terms set forth in paragraph No. 2 of this per curiam opinion. The reasons for the conclusions herein contained will be set forth in an opinion hereafter to be filed."

Liability Agreement Held to be Legal.—The Court of Appeals at Albany, New York, has upheld the liability of an agreement by a railroad employe under which he voluntarily joins a relief association whereby in consideration of the benefits accruing under such agreement, he releases his liability for accident.

The Court holds that the contract is not contrary to public policy nor to railroad law, which prohibits agreements between an employee and a railroad corporation exempting from or limiting the liability of a railroad to its employes. The Court also holds that the contract does not conflict with the insurance law.

Grain Door Decision.—The Court of Appeals, at Albany, New York, has recently held that, where a shipper is put to the expense of supplying grain doors for cars furnished him by the railroad company, and the shipments are consigned to another State, the shipper cannot recover in a State Court the expense incurred. The Court holds that such shipments constitute interstate commerce, and that the Federal Courts have exclusive jurisdiction over these cases. The lower court decision is reverse.

Southern Pacific Land Holdings Effected by Decision.—The United States District Court at Portland, Oregon, has ordered land stipulated to be worth $30,000,000 to be taken from the Southern Pacific Railroad and returned to the Federal Government.

The Oregon-California Land Grant case, involving more than 2,300,000 acres, will be carried to the Circuit Court of Appeals at San Francisco, and later to the United States Supreme Court for final adjudication.

STATE COMMISSIONS.

Arkansas.—Fruitgrowers in the western part of the State have decided to make a fight against the demurrage rules of the State Railroad Commission, which, they declare, increase freight tariffs and prevent the shipment of fruit in bulk.

California.—The Railroad Commissions of the States of California and Arizona, have approved the proposed issue of equipment trust certificates by the Southern Pacific Company. Kuhn, Loeb & Company, are offering $5,000,000 of these certificates, maturing in annual installments for ten years.

The $5,000,000 equipment trusts are part of issue of $10,120,000 authorized by the California Railroad Commission and by the Arizona Commission for equipment to cost $11,429,010, including 3,181 box cars, for $3,179,601; 114 locomotives for $2,548,174; 84 electric passenger cars for $1,160,369; 961 gondolas, $1,026,163; 700 work cars, $184,078; 850 stock cars for $850,350. The remainder is for automobile cars, flat cars, tank cars, and caboose cars. This equipment is to be used over the entire Southern Pacific System.

Canada.—The Railroad Commission has handed down a decision in the express rates inquiry, requiring the companies to submit new tariffs making a reduction of twenty per cent in the prairie and mountain sections, from the present standard maximum tariffs on freight classified as "merchandise."

Although the preparation of the new tariffs will take some time, the express companies are required to proceed without delay, "so as to insure the publication and filing of the new tariffs on or before July 15th." The board order further provides that the basis of standard maximum mileage "merchandise" tariffs shall not exceed $4 per 100 pounds in place of $5 for the prairie section, and $4.75 per 100 pounds in place of $6 for the mountain section for the 900-1,000 mile group. Eastern rates are affected.

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Illinois.—A decision involving the application of the long and short haul law in Illinois which is regarded of exceptional importance to shippers and railroads throughout the State, will be announced soon by the Illinois Railroad Commission.

The law, which has been in effect since July 1, 1911, empowers the Commission to permit a rail carrier to charge a low rate for a long haul and a higher rate for a short haul, whenever competitive conditions among railroads warrant such action. There have been so many petitions for permits of this kind that the disposition of other cases has been delayed.

In response to an invitation from the Commission, attorneys for a number of railroads have submitted suggestions for the enforcement of a general rule to cover these cases which may lessen the number of petitions to be heard.

Missouri.—The State Public Service Commission has under consideration, the question of whether perpetual passes issued by railroads before the enactment of the utilities law, will remain in force. It will hand down a decision later. The pass question came up from an electric line in Jasper County. A former Board of Directors before retiring from office voted themselves life passes over the system. Whether these and other passes issued to persons in return for land for right of way come within the prohibition of the law is the question to be determined by the Commission.

An order was issued by the Public Service Commission authorizing the issuance of $1,050,000 refunding bonds, Joplin and Pittsburgh Railway Company, to take up debenture bonds outstanding.

The reasonableness of passenger rates will be investigated by the Commission if the United States Supreme Court decides adversely on the law establishing a maximum rate of two cents a mile. In the meantime the Commission has ordered all roads operating in the State to furnish it with copies of their schedules.

New York.—In compliance with a bill signed by Governor Sulzer, the public Service Commissions have assumed jurisdiction over baggage and transfer companies. The new law gives to the commissions jurisdiction over such companies to the same extent as it now has over railroad corporations and street railway companies in matters pertaining to rates, service and capitalization.

The same provision made in relation to the liability for loss, damage or injury to property in transit which has existed in relation to railroads is now applicable to baggage and transfer companies.

The Commission has received a petition from the New York Central & Hudson Railroad Company for leave to execute a mortgage extending the lien of the mortgage dated June 1, 1897, from the New York Central to the Central Trust Company, of New York, to secure bonds to the amount of $100,000,000, so that it shall cover properties now owned by the company, formerly owned by the Spuyten Duyval & Port Morris and other railroads.

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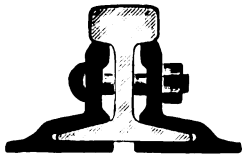

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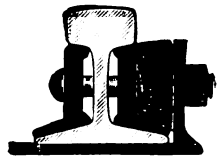

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DIVIDEND NOTICES.

Philadelphia Electric Company, 419 Market Street, Camden, N. J., May 12, 1913. The Board of Directors have this day declared a quarterly dividend of one and three-quarters (1¾) per cent (being 30.625 cents a share) upon the paid in capital of the Company, payable Saturday, June 14, 1913, to stockholders of record May 22, 1913. H. C. Lucas, Treas.

AMERICAN CAR AND FOUNDRY COMPANY.
New York, June 3, 1913.
PREFERRED CAPITAL STOCK.
DIVIDEND NO. 57.

A dividend of one and three-quarters per cent (1¾%) on the Preferred Stock of this Company has this day been declared, payable Tuesday, July 1, 1913, to stockholders of record at the close of business Wednesday, June 11, 1913.

Checks will be mailed by the Guaranty Trust Company of New York. S. S. DeLano, Treasurer.
Wm. M. Hager, Secretary.

AMERICAN CAR AND FOUNDRY COMPANY.
New York, June 3, 1913.
COMMON CAPITAL STOCK.
DIVIDEND NO. 43.

A dividend of one-half per cent (½%) on the Common Stock of this Company has this day been declared, payable Tuesday, July 1, 1913, to stockholders of record at the close of business, Wednesday, June 11, 1913.

Checks will be mailed by the Guaranty Trust Company of New York. S. S. DeLano, Treasurer.
Wm. M. Hager, Secretary.

ANNUAL MEETING NOTICE.

AMERICAN CAR AND FOUNDRY COMPANY.
STOCKHOLDERS MEETING.

The stockholders of the American Car and Foundry Company are hereby notified that the regular annual meeting of the stockholders of said Company will be held at its offices, No. 243 Washington Street, Jersey City, New Jersey, June 26, 1913, at 12 o'clock noon, for the purpose of electing a Board of Directors and transacting such other business as may be properly brought before the meeting.

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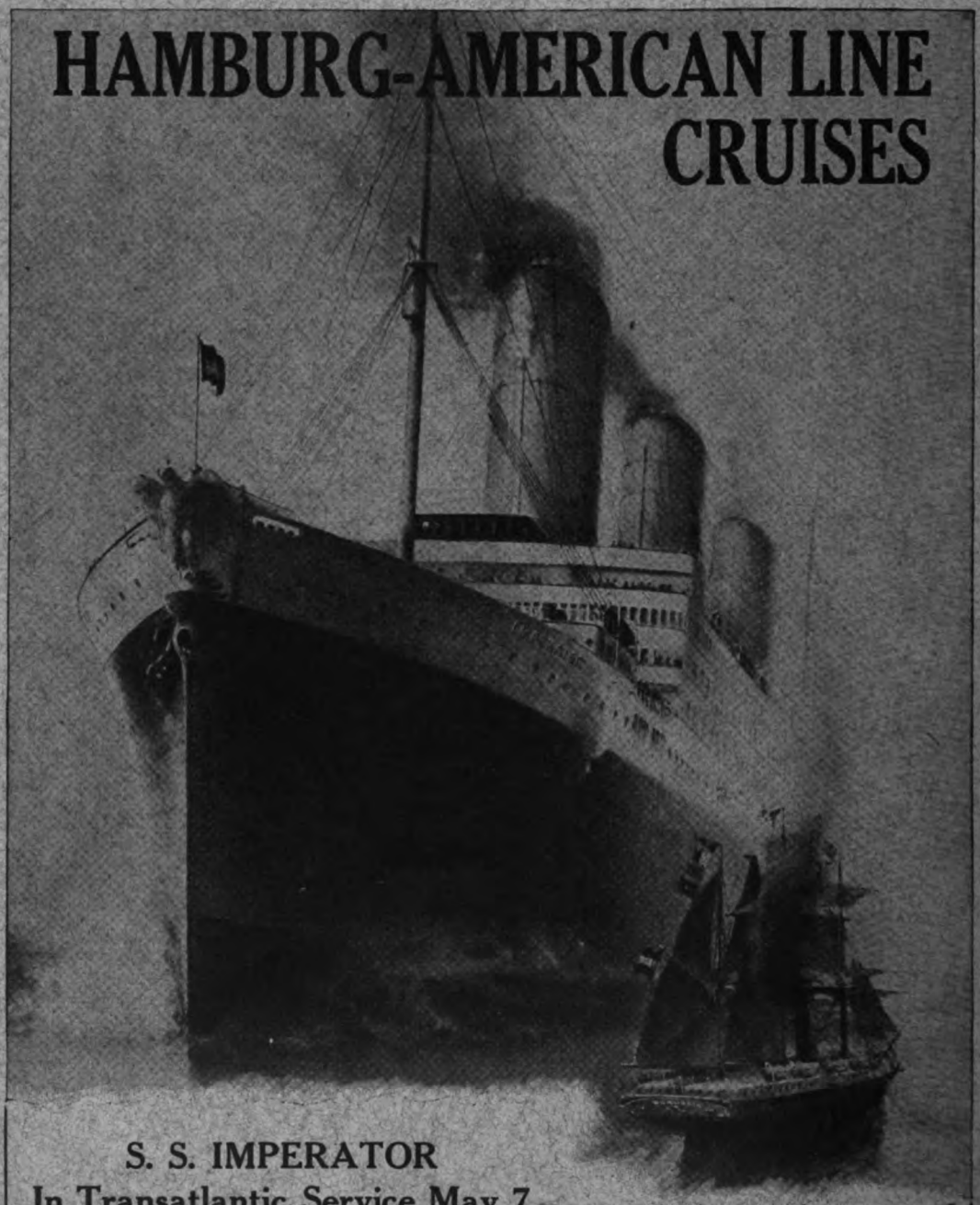

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Railway World

VOLUME LVII ESTABLISHED 1856 NUMBER 7

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Railway World

VOL. LVII. JULY, 1913 No. 7

Important Developments in the Transportation Field

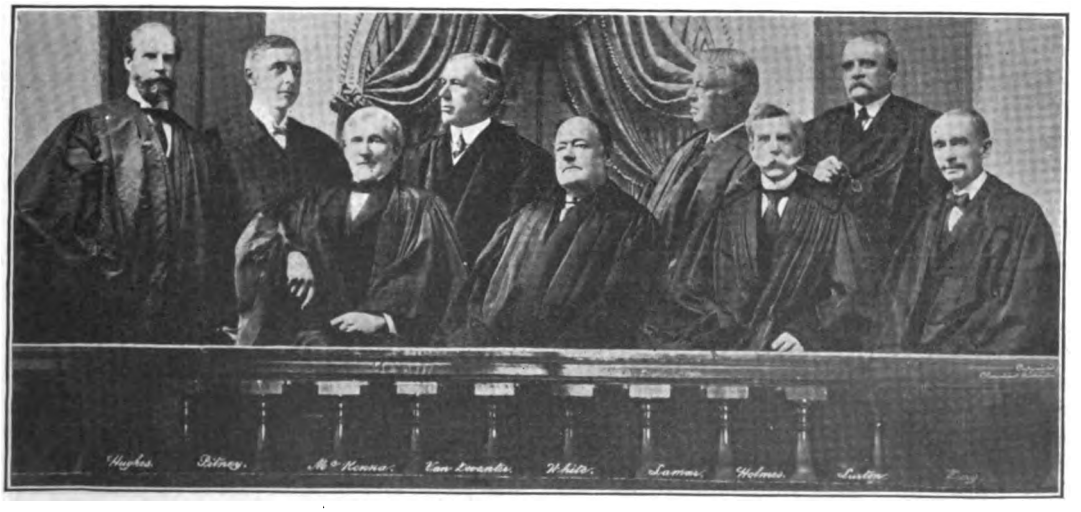
STATE RIGHTS AND THE RAILROADS

In one of the most notable decisions in recent years, the Supreme Court, on June 9th, upheld the power of the state to fix reasonable rates on the intra-state business of interstate railroads, until such time as Congress shall choose to regulate these rates. Two issues were involved in this controversy between the state of Minnesota and the railroad companies doing business within its borders. The first concerned the right of the state to fix rates on purely local business at such a figure as to interfere with interstate commerce, by forcing down, through the influence of competition, interstate rates on commodities shipped across the line. The second concerned the right of the railroad to a reasonable return on the value of their property employed in the public service.

Upon the first point the court held that Congress was supreme over interstate commerce, and that no act or regulation of any state authority could be allowed to interfere with the authority of Congress in so far as that authority had been exercised. In other words, if Congress had by statute, or if the Interstate Commerce Commission, to whom is delegated the authority of Congress over rates, traffic, etc., had by administrative orders, fixed certain interstate rates on traffic from points outside of Minnesota to points within that state, and had declared these rates to be reasonable, the railroad commission of Minnesota could not disturb those rates by reducing other rates subject to its jurisdiction. In the absence of such legislation or administrative order, however, the authority of the state over commerce originating and terminating within its borders is supreme. Neither Congress nor the Interstate Commerce Commission has acted in the matter before the court, and unless and until they do act the right of the state of Minnesota to regulate its own internal commerce must pass unquestioned. We quote upon this point sections 7 and 8 of the summary of the opinion of the court which was read by Justice Hughes:

"7. Under the established principles governing State action, Minnesota did not transcend the limits of its authority in prescribing the rates here involved, assuming them to be reasonable intra-state rates. It exercised on authority appropriate to its territorial jurisdiction, and not opposed to any action thus far taken by Congress.

"8. The interblending of operations in the conduct of interstate and local business by interstate carriers, and the exigencies that are said to arise with respect to the maintenance of interstate rates by reason of their relation to intra-state rates, are considerations for the practical judgment of Congress. If the situation has become such that adequate regulation of interstate rates cannot be maintained without imposing requirements with respect



SUPREME COURT OF THE UNITED STATES.

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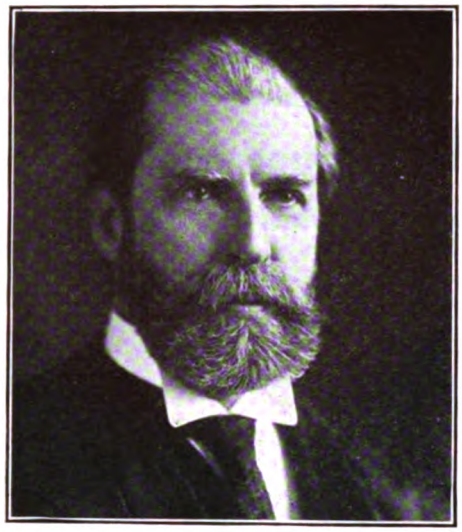

SUPREME COURT JUSTICE CHARLES E. HUGHES,

who prepared State Rate Decisions.

to much intra-state rates of interstate carriers as substantially affect interstate rates, it is for Congress to determine, within the limits of its constitutional authority over interstate commerce and its instruments, the measure of the regulation it should supply.

"It is the function of the court to interpret and apply the law already enacted, but not, under the guise of construction to provide a more comparative scheme of regulation than Congress has decided upon. Nor in the absence of Federal action, may effect be denied to the laws of the State enacted within the field which it is entitled to occupy until its authority is limited through the exertion by Congress of its paramount constitutional power."

On the issue of confiscation which was raised against the reasonableness of the rates established in 1907 by the Minnesota Commission, the court held, in substance, that the proof was insufficient to justify a finding that the rates were confiscatory in the cases of the Northern Pacific and the Great Northern, which, it was agreed, could be considered typical of the larger and stronger railroads affected by the decision. In the case of the Minneapolis and St. Louis Railroad Company, however, a type of the small and weak company, the decree of the lower court, which had adjudged that in reference to all the roads the rates were confiscatory, was affirmed.

The most important part of the opinion is the refusal of the court to accept in its entirety the theory of railroad valuation which bases it upon the cost of reproducing the property of the company. The court was willing to accept the standard of fair market value for the real estate of the companies, basing the value upon the selling price of adjoining real estate, but refused to accept the standards usually adopted in such cases, of multiplying the value of farm property, for example, by two and one half, to reach the cost of reproducing the railroad property. The point of difference concerned the method of valuing the railroad right of way. The court held, in substance, that the accepted method of arriving at the value was too hypothetical. It would not do to start from the assumption that the railroad was not in existence before arriving at a valuation of its property. The court must take the railroad property as it finds it and treat it exactly as any other kind of property. This method allows the railroads credit for the increase in land values but does not allow them to go beyond this. Aside from this modification of the hitherto accepted method of valueing railroad right of way property, the court affirms, in the broadest possible terms, the right of the railroad to receive a fair compensation on the value of its property devoted to public service. "The property of the railroad corporation," said Justice Hughes, "has been devoted to a public use, but the state has not seen fit to undertake the service itself and the private property embarked in it is not

GOVERNOR E. H. HADLEY, OF MISSOURI,

who played an important part in the Southwestern State Rate cases.

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HOWARD ELLIOTT,
President of the Northern Pacific Company.

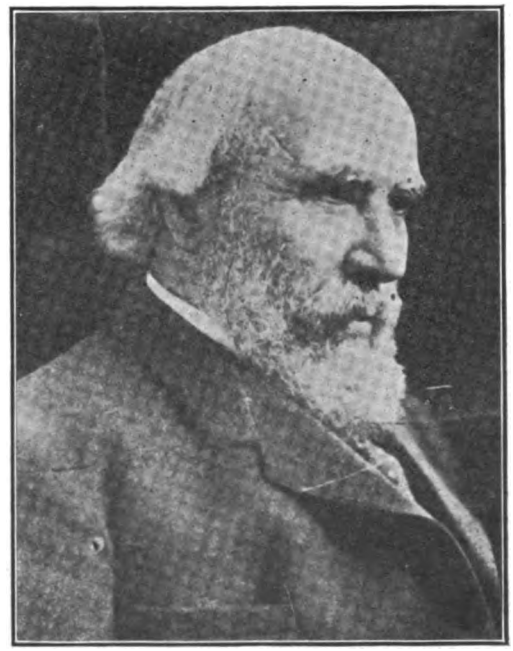
placed at the mercy of legislative caprice. It rests secure under the constitutional protective, which extends not merely to the title, but to the right to receive just compensation for the services given to the public."

The other state rate cases, coming from Missouri, Arkansas, Oregon and West Virginia, were, on a later day, decided by the court according to the same principles which governed in the Minnesota rate case. In each case the sovereign right of the state to regulate its intra-state commerce was upheld.

While it is difficult to understand how the Supreme Court could have decided otherwise in these cases, it must be admitted that the situation arising out of these decisions is a most perplexing one for the railroads. It is true that some railway officials and corporation lawyers see in the decision a victory for the railroads. Mr. Newman Erb, for example, calls the decision a "vindication, not only for the Great Northern and Northern Pacific railroads, but for the Chicago and Northwestern, and practically all the railroads that joined in the fight," and he amplifies this statement by calling attention to the declaration of the courts against confiscatory rates and in support of the supreme power of Congress over interstate commerce.

There is nothing new, however, in the first declaration. The right of a public service corporation to a reasonable return on the fair value of the property devoted to public service has been recognized by the Supreme Court for nearly forty years. The statements in the Minnesota rate case were merely a reiteration of a long series of similar pronouncements. As for the declaration that the power of Congress, and of its delegated representatives, is supreme over interstate commerce, that is merely an affirmation of a portion of the United States Constitution. What is more to the present purpose, and what gives the railroad executives the greatest anxiety, is the invitation which the decision holds out to the railroad commissions of the state to embark on a campaign of rate regulation, each for itself, without reference to the bearing of its action upon rates from points outside of the states, but with a view to building up and protecting its own industries and shippers, and securing for them the maximum local advantage. In other words, the Supreme Court, although as we have said, it could not have acted otherwise, has invited the states, in the absence of legislation by Congress, to go back to the conditions of commercial warfare which prevailed among the states under the Articles of Confederation, the intolerable situation which almost led to interstate war, and which was remedied by the constitutional convention.

The commerce of the United States is not local but national. It is growing more ex-



JAMES J. HILL,
whose proprietory interests in the Great Northern Railway make him a prominent figure in the State Rate Decisions.

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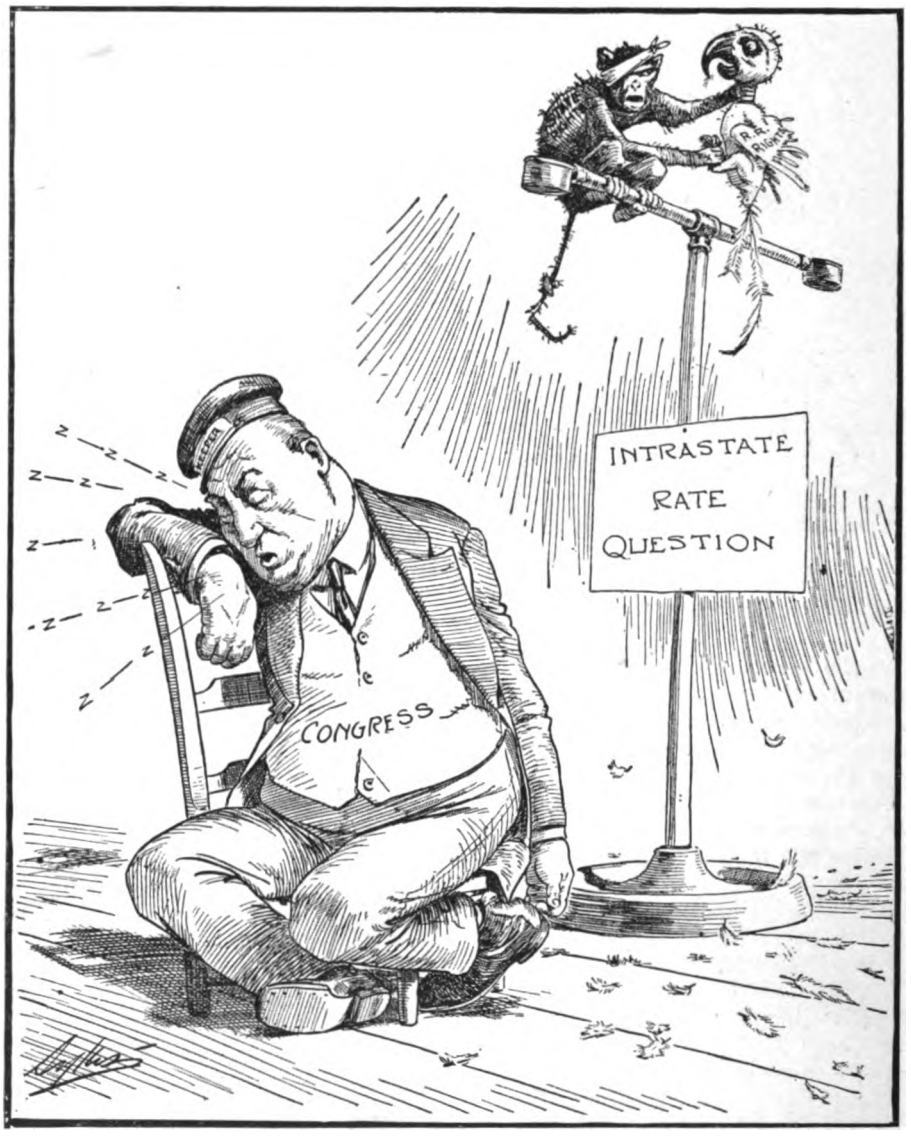

Sykes, in the "Philadelphia Public Ledger."

TIME TO WAKE UP.

tensive in its ramifications every year. To allow each one of the states, through its delegated representatives, to make rates within the arbitrary and artificial state lines without reference to the general scheme of rates on the commodities affected, will result in inextricable confusion. It will produce a situation out of which no one will get any benefit and which will inflict frightful damage upon the railroads. For observe, the tendency of rates, as controlled by state commissions, is always downward, the aim of the commission is always to favor the shipper. With the different state commissions forcing rates downward the inevitable effect is to reduce, also, interstate rates in order to protect shippers in other states. The issue of confiscation relates, under the decision of the Supreme Court, only to the direct effect of the state rates. Since intrastate business is usually a small fraction of the total business of the railroads, this direct effect of intra-state rate reductions is small. In its effect upon the entire rate structure of the railroads affected, however, such action by a state commission may be extremely damaging.

We cannot believe, however, that this situation will be allowed to develop. Either by new legislation, by Congress, or by the ac-

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Carter, in the "Minneapolis Tribune."

"ALL RIGHT—COME AHEAD."

A popular, if erroneous idea, of the effect of the Supreme Court state rate decisions. One of the unfortunate misconceptions which is likely to cause the carriers considerable trouble.

tion of the Interstate Commerce Commission, definite sanction will be given to existing interstate rates. After this is done, a disturbance of those rates by the action of a state commission would be held to be an interference with interstate commerce.

The railroads are looking forward with confident expectation to a development of this principle in a decision of the Interstate Commerce Commission in the Shreveport case which will be settled in the autumn. In this case the Interstate Commerce Commission ordered reductions in certain interstate rates from Shreveport, La., to Texas points, on the ground that they were discriminatory as compared with certain state rates which had been reduced by the railroad commission. The Commission, however, did not compel the state roads to put the lower rate into effect until the case was finally decided, implying, in other words, that the interstate rates if ordered were not reduced because they were unreasonable in themselves, but because they were out of harmony with the lower state rates. The Supreme Court in this case will, therefore, be asked to decide whether a rate which the Interstate Commerce Commission declares to be reasonable may be forced down by state regulations. If the court refuses to interfere, holding to the same ground that Congress has not specifically prohibited such

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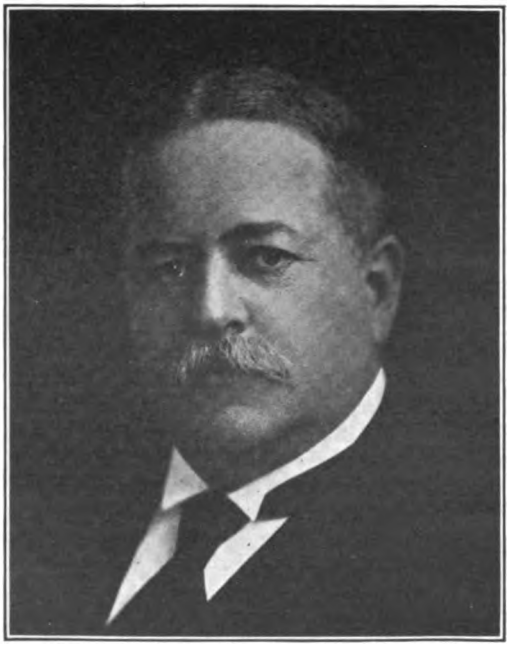
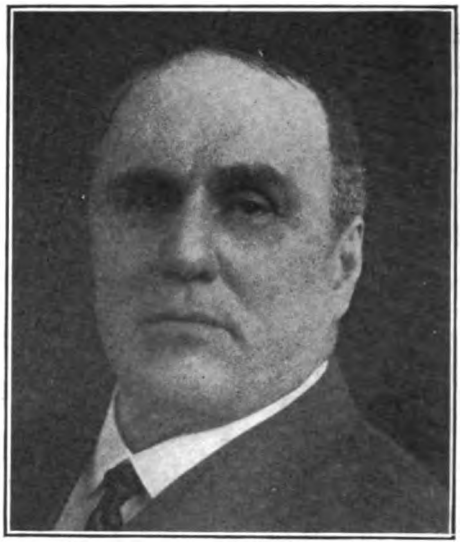
interference by state commissions with interstate rates, and also because this interference is indirect, resulting from the influence of competition, all that will remain for the railroads will be to start a campaign for the assertion, by formal statute of the supreme power of the Interstate Commerce Commission over all railroad rates which directly or indirectly relate to interstate commerce. Congress, as the court said, has the power to enact such legislation and it is believed that the states themselves will not oppose it.

The present stiuation contains the possibilities of very damaging interference with commerce. Parallel cases can be pointed out; at one time the states had large influence over navigable water ways; confusion resulted from conflicting jurisdictions, and state control has completely disappeared from this field. The pure food laws furnish another illustration of the surrender of the states to the federal government. It is entirely too early for the railroads to give up hope of a favorable outcome of the controversy. The Supreme Court in the Shreveport case will have an opportunity to undo the damage which has already been done, and to point the way for the Interstate Commerce Commission to come to the assistance of the railroad. If this hope fails there remains the appeal to Congress.



JULIUS KRUTTSCHNITT,
Chairman of the Board of Southern Pacific Railway.



A. L. MOHLER.
President of the Union Pacific Railroad.

FINDING A SOLUTION FOR THE HARRIMAN LINE DISSOLUTION PUZZLE

The Pennsylvania Railroad Company has volunteered to assist in the solution of the problem presented by the ordered dissolution of the Union Pacific-Southern Pacific combination. The Pennsylvania has offered to take over 382,924 shares of Southern Pacific from the Union Pacific, delivering in exchange all of the Baltimore and Ohio common and preferred stock which it now owns. The values of the stocks agreed upon as the basis of the exchange, are $100 per share for Baltimore and Ohio common, $80 per share for Baltimore and Ohio preferred, and $100 per share for the Southern Pacific. Union Pacific at present owns 322,342 shares of common stock and 72,064 shares of preferred stock of the Baltimore and Ohio. If the proposition of the Pennsylvania is approved by the court these holdings will be increased to 536,078 common shares, and 284,800 preferred. The total outstanding stock of the Baltimore and Ohio is 1,519,500 shares of common and 588,654 shares of preferred. If the exchange is made, therefore, the Union Pacific will own nearly one third of the common and more than half of the preferred, giving it a dominating interest in the Baltimore and Ohio. The offer is made by the Pennsylvania, not, as the imaginative newspaper writers have indicated, to secure a coast to coast route,—but little railway traffic moves from coast to coast,—the

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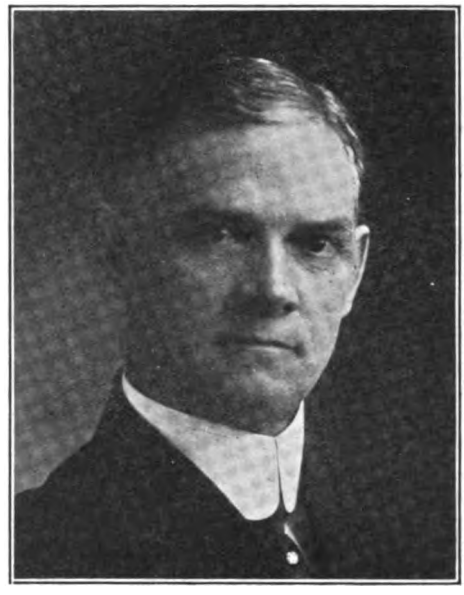
Pennsylvania had no other motive than to relieve a difficult situation by reducing through this exchange the number of shares of Southern Pacific stock which the Union Pacific would dispose of. After the trade is made, there will still remain 883,357 shares of Southern Pacific to be sold.

It is a fair presumption, also, that in time, as market opportunity offers, the Pennsylvania will sell its Southern Pacific stock, and the Union Pacific will dispose of its Baltimore and Ohio. The suggestion has been made that since no such satisfactory plan as this has been proposed to enable the Union Pacific to rid itself of its Southern Pacific stock without heavy loss, similar exchanges may be made by other roads out of their treasury assets, so that the entire amount of Southern Pacific stock may be taken out of Union Pacific hands without any of it being offered for sale in the present very unsatisfactory market.

Attorney General McReynolds is growing impatient with the delay in carrying out the orders of the court. On June 12th, at St. Paul, he commented with much severity upon the failure of the Union Pacific to obey the court order. "The time has come," he said, "for the court to order something to be done," and the proposition to sell the stock within one year, if it could be done without loss, he said, might leave the situation at the end of the year exactly as it is at present. The Attorney General asked the court to either appoint a receiver to dispose of the stock, or to devise, itself, some means of disposing of it. It is evident, from the attitude of the Attorney General, that some action must be speedily taken in this matter and the plan of exchange proposed by the Pennsylvania seems to offer the most feasible solution. It would indeed be most unfortunate if the investment situation, already so tense and difficult, should be further complicated by the offering of immense amounts of railroad securities for compulsory sale.

PROGRESS IN PHYSICAL VALUATION PLANS

Rapid progress is being made in the preliminary work in connection with the physical valuation of the railroads. At a recent conference between railroad presidents, representing 80 per cent of the railway mileage of the United States, and the Interstate Commerce Commissioners, President Samuel Rea, of the Pennsylvania, stated that the railroad companies were prepared to co-operate with the Commission and proposed that each railroad should have a committee of its own officers devoting their time to the work. The best of feeling between the Commission and the railroad presidents was manifested by both sides and there is no reason to expect that serious controversies will develop as the work proceeds. The Supreme Court, as already pointed out in the Minnesota rate case, has indicated certain principles of valuation of which it approves. The fair market value of the property, measured by the value of adjacent property, must be the criterion, instead of the value of the property for railroad purposes.



E. E. CLARK,
Chairman, Interstate Commerce Commission.

"It is manifest," said Justice Hughes, "that an attempt to estimate what would be the actual cost of acquiring the right of way, if the railroad were not there, is to indulge in mere speculation. The railroad has long been established; to it have been linked the activities of agriculture, industry and trade. Communities have long been dependent upon its services, and their growth and development have been conditioned upon the facilities it has provided. The uses of property in the communities which it serves are, to a large degree, determined by it. The values of property along its line largely depend upon its existence. It is an integral part of the communal life. The assumption of its non-existence, and, at the same time, that the values that rest upon it remain un-

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changed, is impossible and cannot be entertained."

An acceptance of this principle by the Interstate Commerce Commission will eventually result in reducing the valuation of the railroads in the West and South, where right of way real estate bears a much greater proportion to the total real estate value of the companies than in Offical Classification territory, where the terminal properties located in the large cities make up such an enormous total. At the same time, valuations of all property will be considerably reduced by this qualification of the theory that cost of reproduction determines value.

DEVELOPMENTS IN NEW ENGLAND

The latest development in the New Haven and Hartford situation is the formation of a stockholders' committee to act as proxy for shareholders, and to bring to bear on the New England railroad situation the unbiased judgment of representative stockholders who have not previously taken part in the management. The chairman of the committee is Mr. George Von L. Meyer, and Richard Olney is elected as one of the counsel of the committee. The committee disclaim, in a circular asking proxies from stockholders, any intention to criticise the management. Their purpose is to study the policy of the company, both financial and operative, and to initiate appropriate action to remove the apprehensions of investors. The committee will co-operate with the directors in working out the problems of the road.

The final result of this period of investigation through which the New Haven is now passing will, no doubt, be beneficial to the company and to New England. Many serviceable facts will be brought out. It seems, however, that, as we have several times remarked, the New Haven has had rather more than its fair share of investigation, and that if it is now to be carried by the stockholders' committee it will have just cause to complain. If the officials of the company can have a little respite from the attacks which have been centred upon them by New York, Boston and Washington, they may be able to give more attention to the performance of their important public service. In this connection it is interesting to note certain facts brought up in a public advertisement of the New Haven showing the safety of passenger travel. The New Haven has been roundly denounced in the newspapers because of its alleged neglect of the factor of safety. The official records show that in the ten years from June 30, 1903, to June 15, 1913, the New Haven operated over 5,000,000 trains carrying 755,000,000 passengers. In these ten years there were six accidents to trains in which persons traveling on them were killed. The number of passengers who lost their lives as result of such accidents was 29. In six of these ten years not a single passenger was killed in an accident.

BOSTON LOSES DIFFERENTIAL CASE

The Interstate Commerce Commission made two important announcements during the past month. On June 17th a decision was issued that freight rates on westbound import traffic must not be lower from Boston than from New York City. This concludes the celebrated differential controversy which has been waged for a number of years between Boston on the one side, and New York, Philadelphia and Baltimore, on the other. For many years certain differentials have been maintained by the railroads on westbound import traffic from the three cities last mentioned. Boston considered that these differentials were unfair and a rate war was begun by the Boston and Maine to secure equal treatment for Boston. The reductions by the Boston and Maine were met by the Trunk Lines and the rate war finally resulted in the carrying by the railroad of import traffic at lower rates than those applied to domestic traffic, in some cases at less than the cost of service.

The Interstate Commerce Commission, being appealed to to act as arbitrator, established certain rates which maintained generally the former differentials. A supplemental opinion held that rates on import traffic should not be lower from Boston than from New York. The shipping interests of Boston joined with the Boston and Maine and the Boston and Albany in asking for a rehearing and the petition was granted "on the sole question of the relationship of the inland rates on import shipments destined to the so-called differential territory as between Boston and New York." In the opinion handed down on June 17th, the Commission points out that to grant the petition of Boston would precipitate another rate war which might be more far-reaching than the last. In conclusion, the Commission says: "It is strongly urged that

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unless the import rates from Boston are lower than from New York, it will be harmful to existing conditions, and make it difficult for Boston to retain the import business which it now has. However much sympathy we may have with that argument we cannot make it the basis of a finding as to unjust discrimination, such as is prohibited by the act."

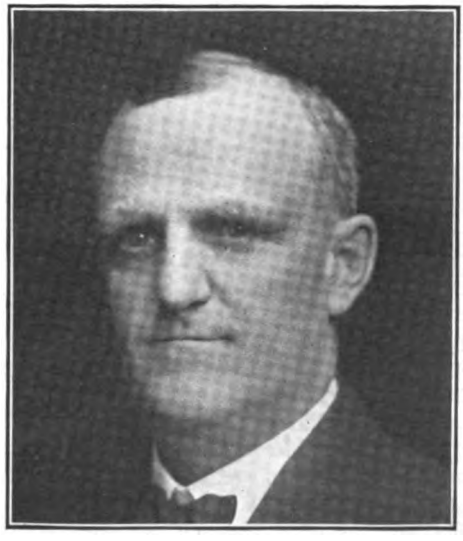
The Commission's decision in this matter must be heartily approved. It is in line with the policy, which has been consistently approved for many years, of giving a larger importance to distance as a factor in the freight rates. New England has, for many years, as former President Tuttle of the Boston and Maine once pointed out, depended largely upon relatively low freight rates to maintain her industrial position. Nothing is more certain from the development of the attitude of the Interstate Commerce Commission than the gradual elimination of these differential advantages.

REOPENING OF ADVANCE RATE CASE DENIED

The Commission has denied the application made by the Eastern roads for a reopening of the rate advance case of 1910. In place of this proceeding the Commission has instituted an investigation into the general rate situation. This will be completed by its own experts during the summer, and in the autumn a number of hearings will be held at which representatives of the different interests concerned will be given an opportunity to present their case. From our standpoint this decision is not unfavorable to the railroads. As we pointed out, in previous discussions of the subject, it would be necessary for the railroads to make out a very strong case to warrant the Commission in reversing its decision of two years ago. It would be necessary to show that conditions had radically changed, and that all of the important points urged by the Commission against the petition of the railroads were not applicable to the present situation. While we believe this could be done, yet the test would be extremely difficult. The Commission will find from its inquiry that the railroads are in great need of new capital and that the new capital cannot be obtained on the basis of existing revenue. The same facts will be brought out in the hearings. It is difficult to understand what action can be taken by the Commission, on the basis of this information, which would not be as favorable to the railroads as anything they could hope for, by securing the reopening of the case involving a flat five per cent increase.

PANAMA CANAL DEVELOPMENTS

The Panama Canal will be opened during the fall or winter. The water will be let into the canal about October first, after which the dredging remaining to be done will go forward more rapidly. With the appointment of Richard Lee Metcalfe, associate editor of the *Commoner* and a close personal friend of Secretary of State Bryan, as Governor of the Canal Zone, the first step is taken in the permanent organization of the government of the zone. The Panama Canal toll question is not likely to be taken up seriously until the regular session of Congress next winter. Several bills on the question are pending before the House Committee on Interstate and Foreign Commerce. There is every reason to expect a repeal of the exemption. Representative Steenerson of Minnesota, sets forth the prevailing view when he says: "Vessels of the United States have an exclusive right to engage in this (coastwise) trade, all other vessels being by law excluded therefrom. This condition has heretofore resulted in many monopolistic combinations of coastwise vessels to such an extent as to call for criminal prosecutions



RICHARD L. METCALFE,

Associate Editor of Mr. Bryan's *Commoner*, who has been appointed the first civil Governor of the Panama Canal Zone by President Wilson.

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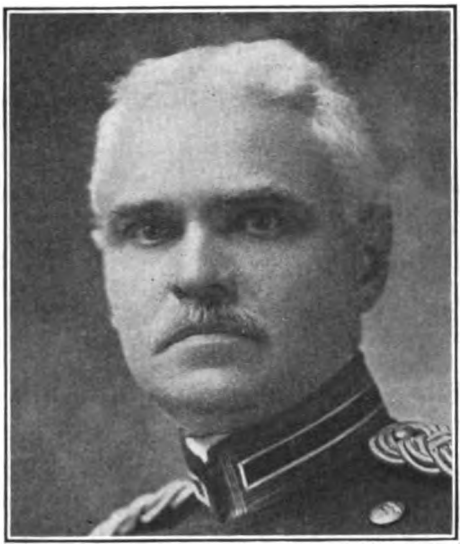

COLONEL GOETHALS,

whose genius and energy have proved a potent factor in the construction of the Panama Canal.

under the anti-trust law. Such exclusive right, together with the subsidy of free canal tolls, will hold out still greater inducements to such monopolistic combinations and extortion, whereby not only the tolls, but the benefit of cheaper water transportation between the coasts instead of benefiting the public, will all be absorbed by the carrier in this trade. Free passage to vessels of the United States through the canal ought to be sufficient advantage to enable them to compete against other vessels paying tolls."

PUTTING THEIR CASE BEFORE THE SHIPPERS

At a noteworthy meeting of New England business men and shippers held on June 12th, in Boston, under the auspices of the Boston Chamber of Commerce, the presidents of three great railroad systems, the Pennsylvania, New York Central and the Baltimore and Ohio, presented arguments in favor of support of the position that the railroads should be permitted to advance their rates. President Willard, after summarizing the large increases in operating expenses on his lines, which have so greatly reduced the margin between income and expenditure that the company does not feel justified in further increasing its capital account, took up the important point of the uniform advance in all rates. He showed it was impracticable to advance rates on the weak railroads without allowing the strong roads a similar privilege. The only effect of such an unequal advance would be to make the weak roads still weaker by diverting their traffic to the roads with lower rates. So complicated is the rate structure that a flat advance, applicable to all rates within the territory affected, is the only practicable method of affording the railroads relief.

In this connection it may be pointed out that the Supreme Court totally failed to grasp this principle in the Minnesota rate case. Its decision allowed the Minneapolis and St. Louis, as representing the weaker roads in this territory, to maintain its former rates, while compelling the strong roads to reduce them. In fact, however, the Minneapolis and St. Louis will be forced by competition to reduce most of its rates to the level of its competitors. This question has been frequently raised in proceedings before the Commission, as to whether some roads should be allowed higher rates than others. In the opinion of February 22, 1911, Commissioner Prouty referred to the matter in the following words: "In 9 I. C. C. R. p. 382, this Commission considered the justice of certain advances in grain rates between Chicago and the Atlantic seaboard, and it there held that whatever rate might be reasonably imposed upon these three systems (Pennsylvania, Baltimore and Ohio and New York Central) must be held to be a reasonable charge for that service by all lines. We hold to the same view in this investigation. We do not mean that other lines should not be considered, but that these systems should be taken as typical. Under rates reasonable for these three systems there may be lines whose earnings will be extravagant but that is their good fortune. There may be lines which cannot make sufficient earnings but that is their misfortune. We ought not to impose upon this territory for the purpose of allowing these defendants additional revenue higher rates than are adequate to these three systems considered as a whole."

President Rea, in his address, laid particular emphasis upon the right of the public to receive from the railroad a safe and efficient public service. To this end roadbed, equipment and other facilities must be adequate. In the public interest, therefore, he urged that since railway revenues, with the exception of a few of the strongest companies, were insufficient to finance necessary capital expenses, an advance in rates should be allowed, and he made the following significant utterance: "All questions of valuation and rate making cannot evade the main one,

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credit and a fair return on capital. If this cannot be had, public ownership is the only alternative, but we believe public opinion will continue to endorse and support private ownership and operation under government regulation."

President Brown, of the New York Central, spoke in similar vein, laying especial emphasis upon the public necessity, altogether aside from the private interests of railway investors, that railway revenue should be increased so that sufficient capital could be provided.

On June 6th, Mr. George D. Dixon, vice-president of the Pennsylvania, at a meeting of the Pittsburgh Chamber of Commerce presented some interesting comparisons in support of the advance in rates. He pointed out that wage payments were now 37.1 per cent higher than in 1900; that operating expenses, including taxes, had increased from 67.7 cents to 78 cents during the same period, that the extra crew laws had increased the operating cost of the Pennsylvania lines east of Pittsburgh alone $756,790, and that from 1906 to 1913 the Pennsylvania Railroad had paid out $9,936,134 to comply with new state and federal laws.

The Pennsylvania Railroad, said Mr. Dixon, did not plead poverty or pressing danger. Its financial position is too strong to fear disturbance. Its officials believe, however, that with the larger revenues which they may secure from higher rates they will be able to raise the already high standard of their public service.

AMENDING THE ERDMAN ACT

The Erdman Act will be amended. So much has been agreed upon by representatives of the railway brotherhoods and the railroads. The plan of conciliation provided by the Erdman Act was not intended to cope with such far-reaching and complicated controversies as those in connection with whose settlement it has recenly been invoked. It was primarily designed to cover the case of one railroad dealing with a group of its own employes. It has been applied to handle situations embracing fifty-four railroads and half the railway traffic of the country. The new act, according to President Seth Low, of the National Civic Federation, will provide for an increase in the number of arbitrators from three to six, adding one to the representation of each of the three interests, the railroad, the employe and the public. President Low, in a statement outlining the proposed amendment, refers to the fact that six is the number of arbitrators chosen in several important international disputes, and that the danger of a deadlock in a board of six in which two of the arbitrators were not related to either side of the controversy would be even less than in the case of arbitration in which two nations were equally represented. It will also be proposed that a national commissioner of mediation and conciliation to be appointed by the President in the usual manner, shall be provided for.

The time is not yet ripe for compulsory arbitration of railway labor disputes. If the methods of conciliation, supplemented by voluntary arbitration, can be made to serve, it will be far more satisfactory, since both sides are more willing to accept the terms of the arbitration. We cannot overlook the fact, however, that the railroads have hitherto fared badly at the hands of these arbitration boards, and that not until some definite standard of return on railway capital shall be made the starting point for the adjustment of all such disputes, can a permanent cure of an almost intolerable situation be hoped for.

PROGRESS IN UNITED STATES STEEL DISSOLUTION

Early in June the defense opened in the suit of the Government to dissolve the United States Steel Corporation. While no new facts have been brought out by the witnesses —and indeed it is impossible to discover anything concerning this much-investigated company which has not already been made public—the array of present and former officials of the company presented a strong case in its defense. Former President Chas. M. Schwab testified that the main purpose in forming the corporation was to increase the efficiency of production with especial reference to enlarging the foreign trade with the United States in steel products. His testimony strongly supported that of President Farrell, who showed the remarkable growth in the company's foreign trade, which now amounts to over $100,000,000 a year. Mr. Schwab admitted the strong position of the United States Steel Corporation in its ore reserve, claiming that it is impossible that any company of the magnitude of the United States Steel Corporation could be organized in the future because of the difficulty of obtaining

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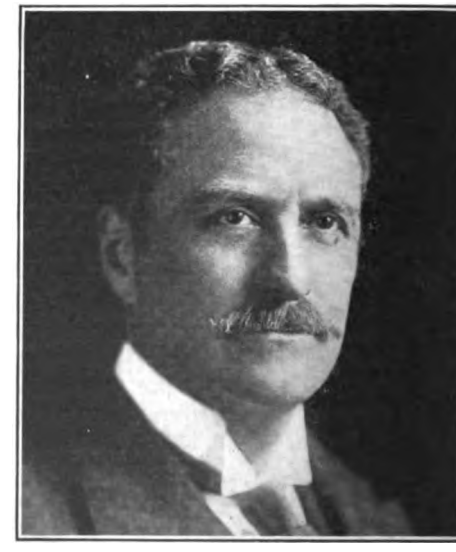
JUDGE E. H. GARY,

Chairman of the United States Steel Corporation.

raw material. He indicated, however, that in the Eastern States no difficulty was experienced in securing abundant supplies of ore, and he predicted that the Bethlehem Steel Company would, in time, produce as great variety of steel products as the United States Steel Corporation. Percival Roberts, Jr., former president of the American Bridge Company, corroborated President Farrell and Mr. Schwab in their opinion that the formation of the steel corporation had been to further the foreign trade. He illustrated the success of the company in the export trade by comparing it to a department store proposition, in which the overhead charges were distributed over so great a variety and volume of products as to enable the necessary price reductions to be made. In this connection President Farrell had previously offered an interesting explanation of the admitted practice of the Steel Corporation in making lower prices for export trade. He compared this to the practice of the railroads, which has been sanctioned by the Interstate Commerce Commission, by making low freight rates on export business. For example, he said that goods consigned to San Francisco for use in San Francisco paid a higher freight rate than goods shipped through San Francisco to China. In making lower prices to secure foreign business the Steel Corporation was merely imitating methods sanctioned by the Government. Mr. Robert Bacon, a former member of the firm of J. P. Morgan and Company, and still a director of the United States Steel Corporation, was another witness who testified that the elimination of competition by the Carnegie Steel Company with the other steel consolidations, was not an impelling motive toward the formation of the United States Steel Corporation.

The most interesting and important witness who appeared on behalf of the Steel Corporation, was Judge Elbert H. Gary, chairman of the Finance Committee. Judge Gary has had more experience on the witness stand than any corporation official in the United States. Time and again, before various committees of Congress, he has traversed the familiar ground which he again covered in his testimony. He corroborated the former witnesses as to the reasons for the formation of the United States Steel Corporation, declared that the company's policy had never been to take an unfair advantage of their competitors, that their policy had been opposed to price agreements, and that he had had no personal knowledge of any agreements entered into by the heads of the subsidiary companies. He further said that it had been his constant endeavor to introduce harmony into the steel trade, that his purpose in giving the now famous Gary dinners was to develop a spirit of harmonious co-operation among the steel producers, as a result of which each one would voluntarily abstain from



ROBERT BACON,

former member of the firm of J. Pierpont Morgan and Company, and a director of the United States Steel Corporation.

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reckless price-cutting and other trade destroying methods.

In reference to the charges of discrimination by the ore roads, Judge Gary claimed that the superior facilities offered by these roads were available to all shippers alike without discrimination, and that competitors of the United States Steel Corporation had profited largely from the superior facilities which these railroads offered. He was especially emphatic in denying that men were elected to the United States Steel Corporation board of directors because of their interest in railroads and other companies which consumed large quantities of steel products. In this he followed Mr. Roberts who testified that although a director of the United States Steel Corporation and the Pennsylvania Railroad Company he had never attempted to influence the railroad company in its purchases, and in fact had always refused to vote on matters to which the United States Steel Corporation was a party. Judge Gary declared that merit was the only test applied to determine the availability of a man to sit on the board of directors of the United States Steel Corporation.

The company has always, he said, maintained full publicity in regard to its affairs. "Our attitude has been that if at any time our policies, principles, position or methods of management did not meet with the full approval and agreement of the administration, or any other department or bureau of the federal government, concerning each or all of our subsidiaries, we have always been willing and did alter them to meet the feeling or overcome the criticism of the government department."

When the company was first organized, he said, he stated in a meeting of the board of directors, that the new enterprise could not hope to succeed unless it squared its conduct with the highest principles of business ethics. It had been his constant endeavor, in his conduct of the affairs of the Steel Corporation, to carry this principle of action into practice. The company had been fair to its competitors, it had prevented prices from rising quite as often as it used its influence to keep them from falling, it had paid high wages and greatly improved the conditions of employment, it had spent money freely to improve the processes of manufacture and to expand its trade into foreign countries, it had been scrupulously fair to its competitors, and it had endeavored to faithfully observe the law.

DEVELOPMENTS AT THE NATIONAL CAPITAL

The tariff bill drags its slow length along. From present appearances the measure will not become a law before October 1st. Many changes have already been announced by the Finance Committee of the Senate, which has been considering the bill as received from the House. Among these changes are the placing of live stock and grain on the same basis as their products, extensive reductions in the duties on raw materials of the iron and steel industry, reductions in the chemical schedule, and certain moderate increases in the textile schedule, designed to placate the cotton mill owners of the Democratic South. It has been definitely decided that sugar and wool shall remain on the free list. In order to avoid the suspicion of hasty legislation without due consideration, the Finance Committee has sent to a large number of manufacturers a list of twenty-nine questions relating to the tariff. These questions are to be answered under oath and relate generally to the cost of production in the industry in the United States and in foreign countries from which competition is experienced, affiliation with or independence of the manufacturers with trusts or industrial combinations, percentage of labor cost to the total of production of the different commodities, and return on the capital invested. Those manufacturers who have filed briefs or made written or oral protests before the Finance Committee against the proposed duties, will have their answers to these questions printed, it is announced, if the answers are received before the bill is reported back to the Senate.

The bill, as reported from the Finance Committee, is certain to meet with vigorous opposition from Republicans and Progressives. Many amendments will be offered and the debate will be prolonged. There is no reason to doubt, however, that the majority will be able to enact their measure into law.

President Wilson has endeavored to bring pressure upon Congress by a public statement that a powerful lobby has been at work, possessed of ample funds with which to defeat the tariff bill. This announcement was plainly intended to terrify those members who are opposed to the Administration on certain duties. The Senate immediately took up the charge and a special investigation committee was appointed which has held many hearings and examined a large num-

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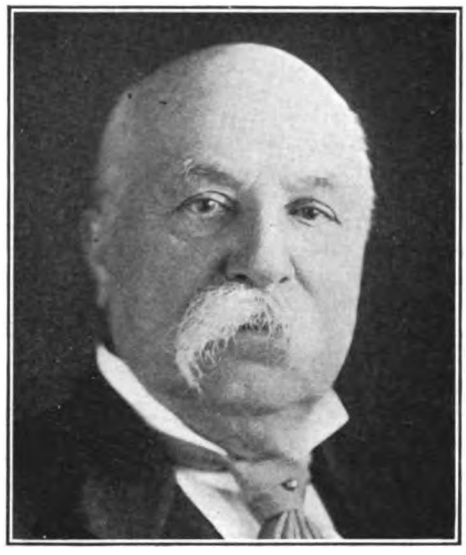

SENATOR GALLINGER,
of New Hampshire.

SENATOR TOWNSEND,
of Michigan.

who criticise President Wilson for employing undue pressure in connection with the passage of the tariff Bill.

ber of witnesses. Nothing new or of sinister import has been brought out by the hearings. It has been shown that Senators and Representatives have been waited upon by large numbers of manufacturers and business men who are interested in the tariff bill and who have presented arguments in support of their views. Certain interests, it has been found, have maintained agents at Washington to represent them before committees and in interviewing Congressmen and Senators. Not the slightest evidence has been produced that any improper inducement has been offered to any Senator or Representative to influence his vote.

The attempt of President Wilson to overawe Congress in this matter, was not only ill advised and unfortunate, but altogether unnecessary. It savors too strongly of the Roosevelt tactics and it has not the saving grace, which Mr. Roosevelt always possessed, of force and pertinency. Senator Gallinger has retaliated sharply upon the President by pointing out that he "has come perilously near lobbying in some of the things he has done in connection with the tariff bill." It is notorious that appointments are being held up and no other explanation can be offered than the influence over legislators which these delayed appointments represent. Open threats have been made by responsible members of the Administration against any manufacturer who might reduce wages after the passage of the new tariff bill. The full power of the executive is avowedly and openly being used to force Administration measures through Congress. It does not, therefore, in Senator Gallinger's opinion, and in this we heartily agree with him, lie in the mouth of President Wilson to censure manufacturers or the agents of manufacturers for exercising the constitutional right of free speech in presenting their case to their representatives in Congress.

CANADA'S ATTITUDE TOWARDS HER RAILROADS

The annual grant of railway subsidies by the Dominion government in the Canadian House of Commons, reveals a program, the chief item of which is a grant of $15,640,000 to the Canadian Northern Railway, which is at the rate of $12,000 a mile, for the construction of 1,170 miles of railroad from Ottawa to Port Arthur, and from Edmonton to the boundary of British Columbia. There is also granted to the Canadian Northern Ontaria Railroad, a subsidiary of the Canadan Northern, the regular subsidy of $6,400 a mile for a line from Ottawa to Toronto not exceeding 250 miles. With respect to these subsidies the government stipulates that they are conditional upon the purchase by the company of all steel rails and fastenings made in Canada, and that all other material for the construction of the railways, bridges

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and rolling stock shall be purchased from Canadian producers, if obtainable on as favorable terms in Canada as elsewhere.

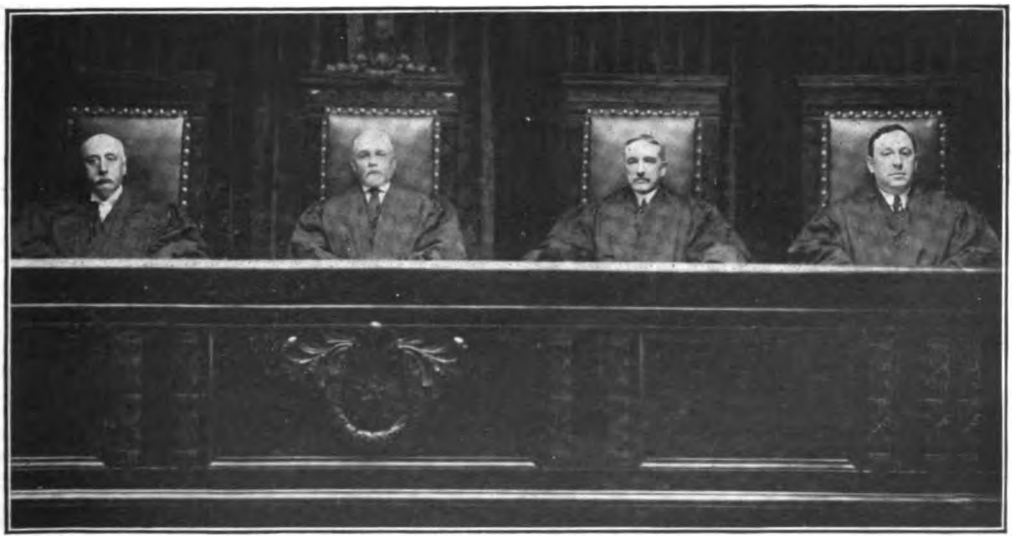
Considering its size and resources the Canadian government has gone much further in the direction of state aid to railroads than our state and federal governments combined. The Canadian government owns and operates the Intercolonial Railroad and is building the National Transcontinental, the eastern end of the Grand Trunk Pacific. It has also guaranteed the bonds of the Grand Trunk Pacific, and many bonds of the Canadian Northern. The provinces have also guaranteed other Canadian Northern bonds. The policy of granting subsidies, in aid of railway construction, is definitely settled in Canada, and allowances, based on the cost of construction, can be counted upon with certainty.

A possible solution of the financial problems of American railways is suggested, also, in the Grand Trunk Pacific loan of $15,000,000 which was put through the Canadian House of Commons on June 4th. It provides for a 4 per cent loan, payable in ten years, and guaranteed by the Grand Trunk Railway Company as to principal and interest. In 1909 a loan of $10,000,000 was made under similar conditions and upon similar securities. The Minister of Finance explained the necessity for this loan by reference to the stringency now prevailing in the money market of the world.

We can easily imagine the reception which a proposition of this kind would receive in Congress. The American method is to regulate the railroads, to hamper them, to lay heavy burdens of taxation upon them, to cooperate with their employes in increasing wages, to raise their operating expenses by oppressive regulations, to control their systems of account keeping, reduce their rates, and control their issues of securities. After doing all these things, the state and federal governments say to the railroads, "you can now operate your property, pay your interest and make a dividend for your shareholders. It is no concern of ours how you do these things." It is no wonder that Canada's industrial development is proceeding with so much greater rapidity, as compared with the slow growth in recent years of the United States.

UNFAVORABLE ACTION ON COMMERCE COURT

On June 25 the House Democrats in caucus agreed upon abolition of the Commerce Court as a party policy, and, turning deaf ears to pleas from their leaders, rejected a plan for the creation of a budget committee to control all appropriations. Representative Broussard, of Louisiana, champion of the Commerce Court, precipitated caucus action on the mooted question by offering a resolution to authorize hearings on the Sims bill to abolish the court. Speaker Clark denounced the tribunal as useless and expensive, and Representative Adamson, of Georgia, chairman of the Interstate Commerce Committee, offered a resolution declaring it to be the sense of the caucus that the court be abolished during the present session, due care being taken to protect and provide for jurisdiction over pending and future litigation. The resolution was adopted by viva voce vote.



THE COMMERCE COURT AS NOW CONSTITUTED.

John E. Carland. Martin A. Knapp. W. H. Hunt. Julian Mack.

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Contemporary Opinion

The Supreme Court Decisions in the State Rate Cases.

NO decisions by the Supreme Court in recent years have created so much interest or caused so much editorial comment, as those made public during June covering the commonly termed Minnesota and Missouri River Rate Cases. In the latter, the principles laid down in the Minnesota rate cases, were practically reiterated.

Undoubtedly, the railroads feel that they have been hard hit, as the decisions strengthen the power of states to regulate the railways within their borders in all the various ramifications which are being expressed by such regulation. This not only includes the regulation of intra-state rates, but also the conduct of the carriers in many other ways. Furthermore, the decisions are likely, unfortunately, to increase the efforts on the part of state politicians to regulate railways for the advantage of their particular communities, and the carriers will have a hard battle before they can hope to develop any well defined policy as to their rights under the law.

Undoubtedly Congress will be forced, sooner or later, to enact laws which will more largely concentrate in the National Government the power to completely regulate the country's railways, but until this is done, the recent Supreme Court decisions have greatly strengthened the regulative power of individual states and have thus complicated the situation so far as the railways are concerned.

Under the circumstances, however, it is hard to see how the Supreme Court could have acted otherwise, and while a number of newspaper editors recognize the apparent misfortune of the decisions to the carriers, none criticise the justice of the decisions or suggest the ability of the Supreme Court to act otherwise. As the Chicago *Record-Herald* puts it:

"The more the decision in the Minnesota rate cases is studied the more sound, important and truly judicious it is found to be. * * * * It points to a grave and difficult problem and tells Congress to solve it as it ought to be solved—after a searching discussion and study of all that the question involves, legally and practically. It averts the chaos of a vast twilight zone; it averts a dangerous controversy over 'judicial legislation.'

"But what of the immediate situation as regards rate regulation? What of the prospect of regulation by forty-eight state legislatures or commissions, in addition to congressional regulation? The answer is that the railroads are not left to the tender mercies of wild regulators, incompetent regulators or holdup regulators; that, in the memorable words of President Hadley, of Yale, property rights and contract rights are still protected in this country as nowhere else in civilization, and that the one thing the railroads really have to fear—confiscatory rates, the destruction of their legitimate net returns—the decision is calculated to prevent most effectually. The states may continue to regulate, and indirectly to interfere with interstate regulation,' but in no case can any state legislature or commission impose an unfair and confiscatory rate. Any such rate may be enjoined and any such improper order may be annulled in the federal courts, the burden of proof naturally and properly being on the complainant."

The St. Paul *Pioneer Press* sees in the decisions a signal victory for state rights, although it points out that the Supreme Court vests no new rights and creates no new order of things, but simply restores the state rights which it held and exercised prior to the decisions of the Circuit Court of Appeals. The *Press* declares that the crux of the decision is found in the declaration that

> "The fixing of reasonable rates for intra-state transportation was left by the act where it had been found; that is, with the states and the agencies created by the states to deal with that subject."

It further points out, however, that the decision does not leave the state in full enjoyment of unlimited power. To quote:

"Its every act in connection with the exercise of its power to fix rates must be governed by reason. The Legislature may prescribe a passenger rate of two cents a mile and a maximum freight rate, provided always those rates are not confiscatory. The power which the court confirms in the state must not be abused and the railroads still have unimpaired the right to ask, on the ground of reasonableness or confiscation, a court review of any rate the state may seek to establish."

The Baltimore *Sun* believes that

"One of the unfortunate things about the decision is that it may throw the railroad-rate question back into national politics, from which it has been more or less excluded since the present broad powers of the Interstate Commerce Commission were given to that body. The Commission at present has no control over intra-state traffic, even though it may directly, as well as incidentally and indirectly, affect interstate traffic. Congress, according to the court's decision, has that power. Probably the simplest method of handling this situation would be the adoption by Congress of an amendment to the interstate commerce act giving the Commission the power which Congress itself possesses in this respect. That would be a logical extension of the Commission's authority; it would be in accordance with the theory upon which federal regulation of the railroads has been carried on in recent years, and it ought to be acceptable to the railroads."

In reviewing the decision as a whole, the New York *Evening Post* declares it to be of high constitutional importance. It says:

"Disappointing as it undoubtedly will be to the railways and to a good part of the investing community, it nevertheless embodies some consideration of positive reassurance. It affirms distinctly the power of Congress to remedy, by its own action, any inequality or undue burden which may result from state regulation of rates. It holds that the question of resultant undue preference as between separate localities 'would be primarily for the investigation and determination of the Interstate Commerce Commission, and not for the courts'—an intimation which bears very distinctly on the still pending Texas rate cases.

"Both these conclusions may be found to have

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some reference to what will perhaps be the most unsatisfactory outcome of the ruling on 'reasonableness'—namely, that to permit higher rates than the state maximum to one railway in that state, while denying them to the railway's competitors, is no real solution of the practical difficulties of the situation. Finally, it must not be overlooked that this decision avoids entirely what might have been an unfortunate and unsettling outcome, in the present state of the public mind—we mean the absolute and peremptory overruling of the law-making power by the court."

The Buffalo *Commercial* asserts, there can be little doubt that the decision is a severe blow to the railroads.

"As an illustration of how the Minnesota roads are hit by the outcome of the litigation it is announced that they will have to rebate to shippers about $3,000,000 in overcharges collected since the law was enacted. Other states which have rate cases pending will find them sustained wherever the principle of confiscation has not been violated, and encouragement will be given to other commonwealths to enact two-cent rate laws and thus virtually upset interstate commerce rates."

Summing up the influence of these decisions, the New York *Commercial* has the following to say:

"By its long deferred decision in the Minnesota rate case the United States Supreme Court has handed the railroads of this country over to the tender mercies of the various states of the Union which can now go as far as they please, so long as what they do to the railroads does not amount to confiscation. It is true that the court points out ways in which Congress can come to the relief of the railroads and protect them from state aggression. At present Congress seems no more inclined that way than the various states so the prospect for such relief is much like a pleasant dream.

"The court holds that the states have practically unlimited power to regulate intra-state commerce but must not interfere with interstate traffic. As far as passenger rates are concerned, in practice the minimum state rate will have to be part of the through rate. If the railroads do not sell through tickets at the minimum rate passengers will simply buy tickets to the state border and then pay the local rate for transportation across or into the state that has set its passenger rate below that allowed by the Interstate Commerce Commission for interstate traffic. The railroads cannot squirm out of this, as experience with the two-cent rate fixed by the charter of the New York Central has proved. Getting cut rates on freight traffic will be more complicated but large shippers will work out schemes to secure them on the same principle.

"This judgment also gives to the state power to compel the railroads to make local improvements and to order them to adopt protection measures of a reasonable character in the interest of the health, safety, morals and welfare of the people of the state, although interstate commerce may be involved. This gives the states the power to pass 'Jim Crow' laws and is a notable victory for state rights.

"The California Railroad Commission will now have the Southern Pacific at its mercy and the case will have a direct bearing on the settlement of the Union Pacific case."

Finally, Professor William H. Taft, of Yale, has analyzed the railroad rate decision of the Supreme Court and in a statement contributed to the New York *Sun* expresses the opinion that on the whole the finding of that high tribunal inclines in favor of the railroads. Summarized, Professor Taft, in this statement, thus puts the grand effect of the decision:

"The result of the main issue is a great victory in principle for the national control of interstate commerce and the possession by Congress of the right to use every appropriate means to render that control effective and uniform, even where the means may include an investigation and restriction under Congressional authority of state fixed rates on state business."

We might add, however, that, for obvious reasons, there is little immediate comfort in such summarization, whatever it may hold out for the future.

Developments in the Rate Situation.

IN another section of this issue is published a statement recently made by R. H. Edmonds, editor of the *Manufacturers' Record*, of Baltimore, regarding the railway situation in the South and Southwest. Any statement by Mr. Edmonds on the railway situation, representing, as he does through his journal, thousands of important shippers throughout those sections, is of unusual significance; and his vigorous stand for the adoption of some policy whereby the railways may be permitted to increase their net income, is a hopeful indication that those who patronize the railways are recognizing, in a fuller sense, the vital influence upon the success of their business, of an adequate and progressive transportation plant. The following is from an editorial which appeared in the *Manufacturers' Record* of June 19:

"The railroads of the country, by force of public sentiment and of economic conditions, have been compelled year after year to increase the rate of wages of their employes; nearly everything they have had to buy, from oils to locomotives, has been advanced in price; indeed, the 'high cost of living' is just as vital to every railroad in the country as it is to every individual. It is costing more to operate railroads, more to equip them, more to provide the facilities which the public demands. They are practically being regulated out of existence without the privilege of increasing their income to a sufficient extent to save themselves. Unless a complete change comes about in the very near future and railroads are given the privilege of making larger earnings by higher rates, this country will be compelled to see a complete breakdown of the whole railroad system of the land, or else to take over all of our railroads, with the enormous indebtedness which that would bring about, and the utter collapse of our system of government which would follow. The stone wall faces us. We cannot butt it down; we cannot crawl underneath nor climb over it. We must find a way to remove it. That stone wall is the misunderstanding of the railroad situation which has existed throughout our country for some years. Too many people have been made, by honest but misguided men and by dishonest demagogues, to believe that they and the country would get rich by destroying the railroads, or by reducing freight and passenger rates to the lowest possible limit. This hostility

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is largely due to the conditions which prevailed in the railroad world fifteen or twenty years ago, when the building of speculative railroads for the purpose of carrying securities, rather than for the carrying of traffic, was the order of the day. Long ago we passed out of that period, and for many years most of the railroad managers of this country have been earnestly striving to operate railroads with just as much honesty as private business interests are managed. They sought to find a way to give to the public the improvements demanded for freight and passenger business. They have seen and realized more than any one else the difficulties which confronted them. They have seen the lessening of their ability to increase their facilities in keeping with the growth of the country. The public, however, has not yet come to a full realization of the danger of the situation that exists to-day. It does not yet fully understand how a breakdown of the railway system of the country would demoralize every industry and interest in the land. Too many people, otherwise intelligent, have failed to recognize that transportation business would be destroyed, wealth would disappear, and stagnation of industry would take its place.

"We are hastening to the time when every interest in the country will be endangered and losses produced which will run into billions unless we can find a way to put our railroad interests on a sounder and safer basis, where their income can be increased and when the $8,000,000,000 or $10,000,000,000 that ought to be spent upon railroad expansion in the next ten years can be provided. This is not a theory. We are face to face with facts of tremendous significance. We can only save ourselves and our business interests by finding a way to vastly increase railroad earnings and to put railroad securities on some safe and sound basis that billions of dollars may be poured into investments in the building of new roads and the expansion of existing lines. Unless we do that we shall see, as surely as we see the sun rise, a breakdown of business because of a breakdown of the machinery of doing business, viz., transportation."

The Philadelphia *Public Ledger* calls attention to the necessity of giving the widest publicity to the requirements of the carriers. It sees in such plan the only method whereby the present situation can be properly met. It says:

"It is not likely that the railroads will take us to heaven, but they will transport us to other desirable places, and their condition—material, political and financial—is the working basis of the nation's business. They are to-day the biggest, most intricate and most vital problem in American affairs.

"But the men who are legislating on these railroads are like the laborers of Babel, and while legislatures are full of speeches and new laws, the railroad fabric remains incomplete. The courts are trying to straighten out the tangles and clear the way for more intelligent action, but we fear that our statesmen, or those who are where statesmen should be, are not studying railroad questions.

"So, to-day the railroads are suffering from the calamity of ignorance. There is need of a campaign of education, not of mere agitation or fault-finding or appeal, but of downright, direct, sane informing, teaching of the fundamentals of the whole business. In this way alone may wise laws be obtained, and until we get these wise laws, transportation will be uncertain of itself and business will be constantly muddled."

H. S. Priest, of St. Louis, who was recently appointed attorney for the receivers of the St. Louis and San Francisco Railway Company, telegraphed the following statement to the New York *Sun*:

"The railroads are in a peculiar situation. The price of everything that enters into the cost of operation, including taxes, has increased. The price of commodities they haul has increased. They have not been allowed to advance the price of transportation.

"If these great arteries of exchange and distribution ars strangled or starved to death the result must inevitably be disastrous to every other business.

"The trend of legislation has been and is to protect private capital until it is invested in railroads, when it ceases to be private capital and becomes property subject to legislative exploitation, both state and federal.

"Under such conditions no one is anxious to invest money in any form of railroad securities and does so only under speculative conditions or in taking the gambler's chance.

"All business is in a halting attitude because all business seems to be more or less the subject of legislative control. This discourages enterprise and progress.

"Business needs emancipation from legislative influence. It has been pursued until it is a nervous wreck.

"Railroads must be managed by their owners. They must be owned either by the Government or by private persons. If owned by the former its ownership gives it the right to deal with them as it please. If owned by private capital it must be allowed to manage them as it may please, subject only to the obligation to give adequate service at a price which is reasonable for the service rendered, without regard to the profit which the owners may make in rendering such service.

"Any other rule of trade will in the end be disastrous to the country because dishonest and immoral."

Financial America asserts that railroad development commensurate with the growth of the country's business, is certain to be retarded, if not definitely postponed, if the railroads are not permitted to increase their rates. In commenting on the views of an English authority, it says:

"Sir George Paish, the eminent financial authority and editor of the London *Statist*, says that one of the reasons for distrust concerning American securities abroad is attributable to the failure of the Interstate Commerce Commission to permit our railroads to increase their freight rates. This view is decidedly interesting and coming from one whose perspective is measurably lengthened, should be regarded as more or less unbiased. It is true that the question of railroad compensation for service to the public is dealt with more liberally in England than in this country. This is clearly established by the recent Parliamentary sanction for rate advances by British railroads, while the situation in this country is the reverse."

Below are a few points which are worthy of the consideration of every man, says Frank W. Tupper in *Moody's Magazine*. Perhaps they may

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show the causes that brought to the railroads in 1912, the lowest relative net income in 25 years, although the gross income was the largest ever received.

First. Railroads have been built by private capital, and such capital has a just right to a legitimate return on the investment;

(a) Even though the character of the service be of a public nature.

Second. Railroads are not allowed to sell their product (transportation) at a price which they deem reasonable;

(a) But are held down by legislative rulings and rate laws.

1. In 1912 the Interstate Commerce Commission handed down 375 rate decisions 65 per cet of them granting reductions, and 35 per cent dismissing complaints, but not one raising rates.

Third. Railroads cannot buy labor, the chief factor in their cost of operation, in the cheapest market, but must buy from certain bodies of men, which are so strongly organized, that they can, and do, enforce its demands;

(a) They cannot refuse to buy such labor, as the continuous operation of a raiload is so vital to a country, that its cessation would result in a great financial loss and actual physical suffering;

1. During the past twelve months the locomotive engineers and firemen in the Eastern territory alone, by threats of strikes, succeeded in getting an increase in wages by arbitration of around $5,000,000, which means that a charge equal to a high rate of interest upon $100,000,000 must be met before even bond interest is paid.

2. The railroad trainmen are now negotiating for a substantial increase.

Fourth. Railroads are subject to drastic legislation involving expense with no appreciable return;

(a) New York's full crew bill resulted in an apparently unnecessary increase of operation of $2,000,000 annually.

(b) New Jersey's full crew bill has same effect.

(c) New Jersey's grade crossing bill provides that

1. All expenses of abolishing grade crossings shall be borne by the railroads. This will result in an estimated outlay by the Pennylvania Railroad, alone, of $60,000,000 with no increased income.

Fifth. Railroads pay high and increasing taxes;

(a) There has been an increase of 178 per cent per mile in twenty-four years although capitalization has increased only 20 per cent per mile.

(b) Of earnings 4.21 per cent was paid in taxes in 1912, as against 2.89 per cent in 1889.

Sixth. Railroads in United States are not over capitalized;

(a) Capitalization per mile of line.

1.	United States	$61,508
2.	England	275,354
3.	Germany	113,326
4.	France	143,648

Seventh. In states where a physical valuation has been made by the state the valuations have exceeded the value of capital securities;

(a) This has been true in the states of Washington, Minnesota and Wisconsin, while South Dakota showed a capitalization practically equal the cost of reproduction.

1. The New York, New Haven and Hartford and Lehigh valley have disinterested appraisals showing low capitalization to replacement value.

Eighth. Railroads do not earn excessive dividends;

(a) In 1912, 3½ per cent was the average return on stock of all roads.

1. In Eastern territory less than one half paid as high as 6 per cent—while 25 per cent paid no return of capital.

Ninth. It is necessary for the railroads to make certain improvements from their surplus accounts, as non-earning expenditures cannot be capitalized. Steel cars, safety devices, modern stations, reduction of grades, etc., all tend toward greater comfort and safety for the public but the necessary expenditures for these purposes do not result in greater earning power.

Attention was called in last month's issue to the liberal attitude on the part of the Canadian Government towards its railroads as compared with that of the United States. The New York *Journal of Commerce* commenting editorially on this phase of the situation, says:

"The Dominion of Canada and its Western provinces are still engaged in a liberal policy of subsidizing railroads for the development of the 'great West' of that part of the continent. It appears from figures of the Finance Minister that the general Government has guaranteed bonds of the Canadian Northern Railway and affiliated lines to the amount of $58,000,000 and the provinces west from Ontario have added enough to make up an aggregate of more than $120,000,000, while the securities issued without guarantee amount to something over $145,000,000. Besides this the Dominion Government has already granted and paid over a cash subsidy of $8,000,000 and a further subsidy of more than $15,500,000 has been carried through the lower house of the Parliament at Ottawa."

New Records in Aerial Flight.

THE Philadelphia *Press*, in commenting recently upon the progress which is being made in aerial navigation, has the following to say

"Its practicability grows clearer as we note the increasing attainments of the air-men in point of speed, distance, endurance, altitude, and comparative safety. Last Monday, for instance, the veteran pilot, Count Zeppelin, with three others in the dirigible 'Sachsen,' paid a visit to the Emperor Francis Joseph at Vienna by flying from Baden-Baden 430 miles away in eight hours at the rate of fifty miles per hour. Though the 'Sachsen' is not considered the speediest airship, yet on this occasion it made a new record. As if not to be outdone, the very next day the French aviator, Marcel G. Brindejonc des Moulinais, in competing for the Pommery Cup—beat all previous aeroplane records by flying from Paris to Warsaw, a distance of 933 miles, in thirteen hours. He covered a stretch 674 miles in seven hours and four minutes, which approaches the two-mile-a-minute pace and through the entire voyage equals the speed of the fastest locomotive 'express.' This is the swiftest flight made between sunrise and sunset, outdoing the remarkable achievement of his rival, Ernest F. Guillaux, who a short time ago flew from Biarritz to Kellum, Holland, a distance of nearly a thousand miles.

"Previous to this, in April last, Gustav Hamel took a passenger in his aeroplane from Dover, England, to Cologne, Germany, reeling off 245 miles in 258 minutes, and a few weeks earlier M.

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Perreyon in a 'Bleriot' monoplane had reached an altitude of 19,685 feet. Records of this character arouse lively conjecture as to the possibility of accomplishing the much-coveted transatlantic journey into which enter all the factors thus put to the test. Under present conditions involving fuel supplies a machine is capable of carrying, the flight must be continuous, and at sixty miles an hour it would take thirty hours to cover the 1,800 miles from Newfoundland to the Irish coast. This speed has been exceeded for a third of the time mentioned.

Under the regulations laid down by the London *Daily Mail* which offers a prize of $50,000 for transatlantic flight, seventy-two hours are the limit. No aero motor yet produced is equal to such endurance, but the machine of best promise is the powerful hydro-aeroplane recently exhibited at the Monaco meeting held at the beginning of last April. With the many mechanical improvements being rapidly evolved and growing confidence in the face of stormy weather, it looks as though in the near future some aerial navigator will cross the herring-pond over the funnels of the big liners."

Physical Valuation.

THE Boston *Transcript* in commenting on the progress being made in the physical valuation plans, has the following, in part, to say editorially

"In a conference between the Interstate Commerce Commission and a committee representing fifty-five railroads, the ground has been cleared for beginning the physical valuation of our transportation system, recently ordered by Congress. It is a hopeful sign that the conference resulted in an agreement for mutual assistance. The carriers were directed by Congress to co-operate with the Commission in ascertaining the physical valuation of railroads, but the aid they will render will not be compulsory. Railroad managers at one time may have been indisposed to welcome a federal inquiry to ascertain the true value of their real tangible property, but to-day, as a class, they probably see that a schedule showing the enormous amount of land and material required for their business would be an admirable argument for liberal treatment by federal authority.

"The general impression, of which railroad-baiters have taken the utmost advantage, is that our railroad system has been greatly over-capitalized, and that it is greatly over-capitalized to-day. Unquestionably there was an era of wild stock-watering just as there was an era of wild expansion, but with the development of railroads to meet the public demand, and with the growth of the country, transportation lines as a whole have more than overtaken any excess of capitalization. Such at least is the belief of many who are in a position to judge dispassionately between what the public demands and what the railroads can give without increasing their financial obligations. A railroad is never finished. Work is going on night and day. The normal labor is for repair and replacement, but the demand of commerce and trade compels expansion of equipment and facilities."

Baiting the Railroads.

THE Buffalo *Commercial* editorially calls attention to the fact that Attorney General McReynolds is practically insisting that the Union Pacific Railroad shall sacrifice its $126,000,000 of Southern Pacific holdings in order to comply with the Supreme Court decision that the interests of the two transportation companies shall be completely segregated. It calls attention to the fact, that while the order of the court must be obeyed, the plans, of the Union Pacific have been largely thwarted in one way or another, on account of the opposition of the Government under the new Administration. Commenting on the attitude of many government officials and others towards the railways, the *Commercial* says

"Of course, the railroad is a fair target for everybody, but the Attorney General shows a brutal callousness to the interests of thousands of innocent stockholders when he advances any such argument as this. The railroad company when it acquired the interests of the Southern Pacific believed it was acting within the law. It was so advised by competent legal authority. There was no conscious wrongdoing upon its part, and not until after the Northern Pacific Securities decision was the illegality of the merger seriously questioned. If the sacrifice demanded by the Tennessean is forced, if the pound of flesh is exacted, it will involve the stock market and add to the troubles that now beset Wall Street. With railroad rates all over the country at sixes and sevens as the result of the Supreme Court decision in the Minnesota rate case, with the operating expenses of the railroads increasing by leaps and bounds, with the railroads hampered and harassed by the Government at every turn, it is high time to call a halt. Unless the policy of nagging the rail carriers is ended soon, the country will suffer the most disastrous consequences, because it is impossible to injure the largest single business interest in the country, the largest consumer of manufacturing industry and the largest employer of labor, without involving all in a common disaster."

Alexander Forsyth, superintendent of shops of the Chicago, Burlington & Quincy, at Aurora, Ill., died on May 19th, at the St. Charles Hospital, Aurora, aged 68 years. Mr. Forsyth was born in April, 1845, in Cumberland County, England. His entire railway service was with the Chicago, Burlington & Quincy, with which road he commenced work in 1869 as a machinist. From October, 1880, to October, 1881, he was general foreman at Beardstown, Ill., and then became master mechanic at that point. In January, 1887, Mr. Forsyth was transferred to Aurora as master mechanic, which position he held until March, 1906, when he was appointed superintendent of shops.

George B. Francis, M. Am. Soc. C. E., a well known former civil engineer in the railway service, died at his home in New York City, June 9th, at the age of 56. He was born at West Hartford, Conn., and was educated at the Hartford High School. He was the first chief engineer of the Boston Terminal Company, and the South Station at Boston and the Union Station at Providence, were among the most important works carried out by him.

John Jacobs, former roadmaster of the Illinois Central Railroad, died in Chicago, June 6th, aged 87 years.

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The Financial Requirements of the Railroads

NOTE. Richard H. Edmonds, editor of the *Manufacturers' Record*, published in Baltimore, has recently completed a six-week's trip through the South and Southwest during which he made a special study of railroad and business conditions. In a statement published in the *Baltimore Sun* he asserts that "One of the greatest problems before this country is how to meet the need for a great expansion in railroad facilities to keep up with the growth of the country." For many years the *Manufacturers' Record* has been closely identified with the industrial developments of the South and Southwest and has represented in a larger way than any other journal, the business interests in those sections which have annually contributed an enormous tonnage to the railways. The conclusions which Mr. Edmonds has reached, as expressed in the following paragraphs, are a hopeful indication that shippers are more fully appreciating the problems confronting the carriers.

THE railroad traffic of this country practically doubles every decade. The magnitude of our railroad business is seen in the fact that the Pennsylvania Railroad hauls a greater tonnage than that of all the railroads in England, Ireland, Scotland and Wales, and on the average hauls it three times as great a distance, so that on the ton mileage basis the Pennsylvania Railroad hauls three times as much freight as all the railroads of the United Kingdom.

The traffic on the United Kingdom roads increases slowly as compared with the traffic in this country, and it is estimated that the traffic on the Pennsylvania will double in the next ten years. Similar conditions prevail throughout the country.

To increase the railroad facilities rapidly enough to keep up with the growing traffic needs of the country would require an investment of at least $7,000,000,000 to $8,000,000,000 within the next five or ten years, in addition to the usual amounts expended for betterments and increased rolling stock. If we are to double our railroad traffic in ten years, we ought certainly to increase our transportation facilities in that time to 50 per cent or more and take care of the still larger volume by increased motive power, larger cars and heavier rail equipment.

Where so vast an amount of money is to come from is a question which confronts the financial interests and the railroads of the country. No answer to the question is in sight, but if the money cannot be provided, then the volume of traffic will be so far ahead of the facilities for handling it that the railroads five or six years hence will be wholly inadequate to meet the emergency, and the machinery of transportation will break down except on the best roads in the country, just as it broke down in 1907 and helped to bring about the financial conditions of that year.

Persistent agitation against railroads has made it practically impossible to raise money in large amounts for railroad building and betterments. Fortunately there is now seen throughout the country—and this is noticeable even in the States where the most pronounced agitation existed—a kindlier feeling to the railroads and a recognition of the fact that, like the Siamese twins, the roads and the people are so closely connected that one cannot suffer without the other suffering and one cannot prosper unless the other is prosperous.

The people of the country at large are even more vitally interested in the enlargement of transportation facilities by enormous expenditures of capital than are the railroads themselves, because the people are greater in number than the stockholders of railroads.

There is a growing realization throughout the South and Southwest of a need for large railroad expansion and for the betterment of existing lines. The railroad people have seen this condition and have been doing all in their power to meet it, but the money has not been available to carry out improvements on the scale demanded in order to reduce the cost of handling traffic and take care of the great increase that is ahead of us. On a good many roads the physical condition of the roadbed and rolling stock cannot be maintained at the highest state of efficiency because of this scarcity of money.

RICHARD H. EDMONDS.

On other roads, important extensions, where an abundance of traffic would be immediately available, cannot be made for the same reason. With our increase in population, running now to eighteen to twenty million people in the next ten years, and the growth in trade and traffic far larger proportionately than the increase in population, the whole country is brought face to face with the great problem which the railroad people have foreseen—of inadequate transportation facilities to handle business. Many Southern and Southwestern roads are making very considerable improvements.

During the last five years not far from $1,000,000,000 has been spent in road building and the betterment of roads of the South and Southwest; but even this vast sum has merely enabled the roads to keep from falling behind; it has not enabled them to push their development ahead looking to the future.

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The Increased Cost of Operation*

By GEORGE D. DIXON,
VICE-PRESIDENT, PENNSYLVANIA RAILROAD.

GEORGE D. DIXON.

RAILROAD managers feel, and I believe the business men of the country concur, that the great transportation interests must continue to develop. With the growth of traffic which will naturally follow, greater terminals, more tracks, and a large increase in cars and locomotives will be necessary to handle the business.

In the passenger service, it is necessary that the public should have the fullest measure of safety and comfort which the railroads can furnish. This means the removal of grade crossings, the installation of automatic signals, and the construction of all-steel cars. All of these things have to be paid for and for that purpose capital must be raised. If the investor is not assured of a safe return on his money, he will not supply the capital for our purpose; he will put it elsewhere, either in this country or in some other part of the world. If the investor will not supply us with new money to finance the improvements which are required, those improvements cannot be made and the public and shippers cannot be supplied with proper facilities. The money must come from somewhere, and unless conditions can be made such as to attract that money, both the railroads and the public they serve will suffer.

For the above general reasons, the railroads in the Official Classification territory, as a whole, feel it to be necessary for the future welfare of these great transportation interests, and have petitioned the Interstate Commerce Commission to reopen the advance in rates case of 1910, known as Docket No. 3400, asking for a general increase of five per cent, with a reasonable minima per one hundred pounds and per ton, in all rates both class and commodity. It is the intention of the railroads to maintain the usual port differentials, and the percentages and territorial groupings, so that with an advance of five per cent there will be no material change in the relative rate adjustment as between communities, in effect to-day.

In so far as the Pennsylvania Railroad Company is concerned, we do not plead poverty or pressing danger. There are many railroad companies, however, to whom this increase is a vital necessity. The position of the Pennsylvania is that an increase is not only warranted but necessary, to enable it to continue giving adequate service to the public.

Our company has not been paying large dividends to its shareholders. The policy has been to pay a reasonable dividend and to regularly put a fair share of earnings back into the property. If all the money which has been put into the property of the Pennsylvania Railroad Company had been supplied by investors, they would to-day be earning but 4.83 per cent on their money. At this moment it would be absolutely impossible to find new money if that was all the return that it could be expected to yield.

Though at the moment our company is in strong financial condition, our records show that for several years past certain very definite tendencies have been at work. These are:

1. A steady increase, partly forced and partly warranted, in the rate of wages. Our wage payments are now at a rate of 37.1 per cent higher than in 1900.

2. A persistent increase in the ratio of cost of operation to total earnings. In 1900, for every dollar we earned, it cost us (including taxes) 67.73 cents to run the road. For every dollar received in 1912, it cost us 78.09 cents for actual operation.

This increase in operating expenses is due not only to the increases in wages and taxes, but also to the fact that the railroad is compelled to employ a constantly greater number of men relative to the work to be done. This is indicated in the cost to the Pennsylvania Railroad East of Pittsburgh alone of extra crew laws, as follows:

	Estimated Annual Cost.	Names of States.
	$591,805.69	in Pennsylvania.
	20,611.40	in Maryland
	144,373.08	in New Jersey.
Total	$756,790.17	

Up to January 1, 1913, and since August, 1906, our company had paid out $10,936,134.90 to comply with new laws, Federal and State. These laws may have been desirable. This is not the place to discuss that point. At any rate, they are imposed upon us by public authority and we must comply. The public has the right to impose any burdens it pleases upon railways, but it is palpable that the cost must be met by somebody.

3. A third tendency is toward an unyielding increase in the cost of capital. This is a tendency noticeable throughout the world. The general in-

*From remarks at a meeting of the Pittsburgh Chamber of Commerce on June 6th, 1913.

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terest rate is going up, affecting the price of government bonds and securities of all kinds. Railroads must pay more for their money.

Now, with the cost of handling business steadily encroaching upon the receipts from that business, it is evident that we are approaching a danger point. We feel that we ought, as a matter of sound policy, to be permitted to earn a greater margin between income and outgo. This is absolutely essential if we are to be able to raise the capital to finance our requirements in the next few years.

These requirements, bear in mind, are not for ourselves only, but that we may give shippers and passengers the increased and high class service they have a right to expect. We estimate that on the Pennsylvania Railroad system in order to do our duty to the public, we must spend within the next few years very large sums of money for additions and improvements. The problem will be how to raise that money, and in solving it we must have the co-operation of the shippers and the public generally.

Our prosperity is your prosperity, and vice versa. The public should insist upon having the railroads handle its business at reasonable rates. But given reasonable rates, it is to the public's interest that the railroads earn all the money possible with which to give increasingly good service to the public and pay reasonable dividends.

The case is very simple. There is no mystery about it. It is for the Interstate Commerce Commission to settle the merits of the case, but we feel that the shippers and the public are entitled to know the why and the wherefore of what we are asking the Commission to do.

The Railroads' Attitude on the Rate Question

PRESIDENT DANIEL WILLARD, of the Baltimore and Ohio Railroad System, who is chairman of the committee of presidents, in presenting before the Boston Chamber of Commerce, on Thursday (June 12), the railroads' position in the matter of the application for an increase of 5 per cent, in freight rates, reviewed briefly the history of the application made by the railroads in 1910 for an increase in freight rates, which was at that time deemed to be necessary because the higher wage schedules which had been granted to employes, the increased cost of materials generally and expense incident to legislative enactments had so narrowed the margin between income and outgo that the net earnings were, in their opinion, insufficient to enable the maintenance of the properties in satisfactory condition and to provide the improvements and additions that the growing commerce of the country constantly demanded. At that time, Mr. Willard stated, the railroads failed to establish in the minds of the Commission the necessity for increased rates. The Commission also suggested that even if the necessity had been established, it was doubtful if the plan proposed, which contemplated increases varying from 8 to 20 per cent in certain class rates was the right or best way in which to obtain such revenue. Further, that there had been a general depression of business at that time, and the carriers ought not to expect to raise their rates when business was dull.

Mr. Willard pointed out that the rates which were in effect in 1910 had not in the aggregate been maintained. He cited as an example that the net result to the Baltimore and Ohio Railroad of various changes in rates since 1910 was a reduction in earnings on the freight business handled by the company in October, 1912, of more than $100,000 and it was estimated that for the year such decrease would amount to not less than $800,000.

Not only had the general basis of rates been lowered to some extent by orders by regulating commissions, and perhaps to an equal or greater extent by commercial conditions and influences beyond the power of the carriers to resist, but during the same period expenses had also greatly increased.

Mr. Willard said: "Again in the case of the Baltimore and Ohio, the wage increase of 1910 amounted to approximately $2,500,000 a year, and the increases which have been granted—either voluntarily or by virtue of arbitration awards—within the last twelve months have resulted in adding over $800,000 more to the expenses each year. Further, as is well known, the conductors and trainmen are now engaged in taking a strike vote for the purpose of enforcing their demands for an advance of approximately 17 per cent, and while it is not likely that they will obtain all they ask for, it is probable that if the matter should go to arbitration under the provisions of the Erdman act, as it now stands, that they would receive a substantial increase.

"Prices of various kinds of material have also advanced since 1910. The coal bill of the Baltimore and Ohio Railroad amounts to approximately $6,000,000 per year, and within the last two years there has been an advance in the price of coal upwards of 10 per cent. The increase in price of ties has also been considerable. Prices asked and paid for locomotives, freight and passenger cars are also higher to-day than was the case three years ago for equipment of the same kind.

"Legislation of various kinds—both State and Federal—has had an important influence upon expenses. The so-called full crew bill, which has become a law in many of the States, requires the railroads to employ an extra man on all trains of more than certain length, regardless of the local conditions.

"The hours of service law, boiler inspection laws, laws in various States prescribing standards of construction for caboose cars, laws with reference to the construction of postal cars, revised orders with reference to safety appliances upon new equipment, as well as upon existing equipment; laws with reference to grade separation, etc., all have tended to very greatly increase the cost of operation. It is not my purpose, at this time, to question the wisdom of any of the laws referred to, because, regardless of whether they are wise and necessary, the added expense is there and must be paid.

"Taxes have increased largely during the last three years. In the case of the Baltimore and Ohio Company the increase in that one item since 1909 amounts to more than $900,000 a year. I think it is perhaps not a matter of common knowl-

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edge, although one of public record, that the American railroads, as a whole, pay each year in taxes more than $120,000,000, a sum nearly two and one half times as much as the total amount received by all the railroads for carrying the mails."

Attention was also called to the fact that the interest basis on all investments had been raised within recent years and that the very best securities must now pay higher rates than ever before, that while the railroads were not peculiar in this respect, they were in common with others required to pay a much higher rate of interest than was the case five or ten years ago, and that this item was very important, particularly with the large systems, upon which millions of dollars are being spent, and should be spent, each year for additions, betterments and new equipment made necessary by the growing demands of the constantly expanding commerce.

Mr. Willard also stated that the public demands, expects and receives a higher standard of service in all directions than has ever been the case before. "While no one recognizes better than the railway managers that the service is not always satisfactory and is frequently not such as they would like to furnish, I believe," said Mr. Willard, "it is nevertheless a fact that upon the whole it is on a more satisfactory basis to-day than ever before, and that this was accomplished only by means of greater expense in operation."

In summing up conditions, he continued:

"The various influences which I have mentioned have all tended to further reduce the margin between income and outgo, and it has become so narrow that the railroads—many of them, at least—do not feel justified in further increasing their capital account, regardless of the rates at which money may be obtained, because the burden assumed by so doing might seriously interfere with their ability to maintain reasonable payments upon their capital issues already existing."

Mr. Willard cited Mr. James J. Hill's estimate made in 1908, that the railroads of the country should spend not less than one billion dollars a year for betterments and equipment and quoted figures showing that the actual expenditures during the past four years had been only at the rate of $511,000,000 a year, or about one half of Mr. Hill's estimate. The same reports also show that the net earnings of the railroads for the year ending June 30, 1911, after paying operating expenses and taxes, were actually $8,787,000 less than they were in 1907, and before the additional $2,000,000,000 had been expended, and the percentage of return on cost of road and equipment in 1911 was only 4.97, as compared with 5.82 in 1907.

The report of the Federal Census was quoted to show that during the previous decade capital invested in agriculture had increased 100 per cent; in manufactures 105 per cent, while capital invested in railroads during the same period had increased but 40 per cent, and that one result of this disparity of investment was to place manufacturing industries, when measured by the amount invested, second only to agriculture and in the position previously occupied by the railroads.

"If I am not mistaken in my understanding of the general situation," said Mr. Willard, "and if I have stated it as it actually exists, it would seem that we all must agree that we are confronted with a serious condition, and one worthy of the careful and dispassionate thought of every one interested in the development of our country. Granting for the sake of argument that the situation is substantially as I have stated, it seemed to me that the most important question next to be considered is, how can the matter be adjusted and that, too, for the best interests of all concerned, including not only the railroad bondholders, shareholders and employes, but also from the standpoint of the manufacturer and consumer, because in the last analysis the consumer is the one who will ultimately pay the freight.

"Three years ago the Commission said that the railroads had failed to establish a necessity for increased revenue. I believe that necessity is apparent to all at the present time. They suggested that the plan then proposed was not the right one, and with that suggestion the railroads now agree, and have proposed another method which seems under all the circumstances to be fair and equitable. It was also suggested that if the rates were to be raised at all, it should be done when times were good, and upon the whole, business was never better than it is at the present time."

In this connection Mr. Willard explained that it was now considered better to obtain, if possible, the necessary advance in rates by a percentage uniformly applied to all items; and while it was believed in view of all the circumstances the increase should be not less than ten per cent, that desiring to obtain the necessary relief in a manner that would cause the least possible disturbance of existing commercial conditions, it was concluded to ask permission to make a five per cent advance only; and that should it develop later on that the relief so obtained was not sufficient, the matter could be given further consideration in view of conditions then existing.

Mr. Willard then continued:

"It is believed that the increased rates proposed are fair and reasonable when considered in connection with the operation and requirements of the three railroads—the New York Central, Pennsylvania and Baltimore and Ohio companies—specifically referred to by the Interstate Commerce Commission in its decision in the 1910 rate case No. 3400, and it is urged that if the rates are reasonable when so considered, they ought not to be withheld simply because they might result in greater earnings on the part of some other carrier, than would be justified when considered of and by itself.

"I wish to say just a word with reference to the general railroad situation. There can no longer be any doubt that the public has ample and efficient machinery for the thorough control and regulation of the railroads. We not only have a federal commission in Washington which has been granted the widest possible powers to regulate and supervise, but we have also commissions in nearly all of the individual States, with powers relatively as great as those delegated to the federal body. The Interstate Commerce Commission is empowered to prescribe the manner in which the railroad accounts shall be kept, even to the minutest detail and the railroads are now keeping their accounts in harmony with the requirements of the Commission. It is also provided by law, under penalty of heavy fine and imprisonment, that no discrimination shall be shown either with reference to rates paid or service given, as between individuals or communities.

"It has come to be understood that the rail-

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road is a semi-public institution, and that it is expected to treat all with equal fairness. The executives in charge of the railways, by virtue of what has come about, occupy the dual position of semi-public officers, charged with the duty of operating the properties in harmony with the laws of the country and also with the equally-important duty of trustee, representing those whose money is invested in the enterprise. It should be remembered that although the railroad is considered a public utility with important public functions to perform, it nevertheless owes its very existence to the employment of private capital, and Mr. Commissioner Prouty has well said in one of his public addresses that 'we can provide by legislation the sort of cars which a railroad shall use and the rates which it shall impose; we cannot by legislation force one single dollar of private capital into railroad investment against its will.'

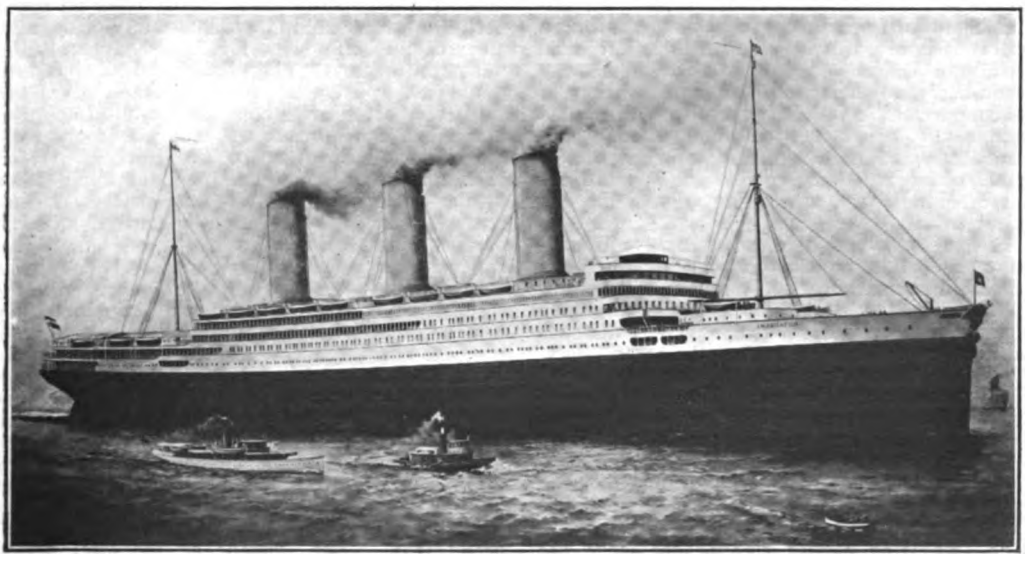
"Those who to-day manage the railroads are chiefly men who have devoted the greater part of their lives to that service, and will not as a rule be personally affected one way or the other by the outcome of this movement. They appreciate fully their obligations to the public, while at the same time not unmindful of their duty as trustees, and I should personally feel that I had failed absolutely to measure up to the requirements of my position if I felt as I do about the situation and remained silent. I feel it incumbent upon me as the chief executive of the Baltimore and Ohio Company to do what I can to bring the situation as I see it clearly before, not only the Commission, which in the end will decide the question at issue, but also before those who are vitally interested in the proper solution of this problem. Should the Commission, however, after a full hearing, decide again against the contention of the carriers, I at least—and I am sure I can speak with equal clearness concerning my associates—shall continue to do the best that I am able to meet the requirements of the situation, but it ought to be clearly understood that in that event the policy of cheapness instead of quality, which the railroads have already been obliged in a measure to adopt, must of necessity be continued, and I cannot believe that the American people want their railroad system run permanently on that basis."

The World's Largest Ship

THE S. S. Imperator, the new marine wonder, which reached the shores of America about the middle of June, opens a new chapter in marine history. The great liner is not only the largest ship in the world, but establishes new standards by the completeness of her mechanical equipment, her safety devices, and the variety and luxury of her cabins. The Imperator is built with an inner-skin, with both longitudinal and transverse bulkheads, and other original features. Taking advantage of her great dimensions, the ship's public cabins and staterooms have been made so large as to avoid any suggestion of crowding. The Imperator is the latest addition to the fleet of the Hamburg-American Line.

The Imperator measures 919 feet in length or almost one-fifth of a mile, 98 feet in width or that of a great boulevard, and has a tonnage of 50,000. Her powerful quadruple turbine engines drive her at an average speed of 22½ knots an hour, crossing the Atlantic in six days. She is manned by a crew of 1,180, selected for their long service on other ships of the Line. The rigid discipline for which this service is famous obtains in every department. Despite her great size, the Imperator carries only a few more passengers than ships of half her tonnage, assuring complete comfort of all on board.

No hotel on either side of the Atlantic offers its guests so great a choice of dining rooms, ball rooms, winter gardens and palm rooms, grill rooms, smoking rooms, gymnasiums, roof gar-



STEAMSHIP IMPERATOR OF THE HAMBURG-AMERICAN LINE. THE LARGEST STEAMSHIP AFLOAT.

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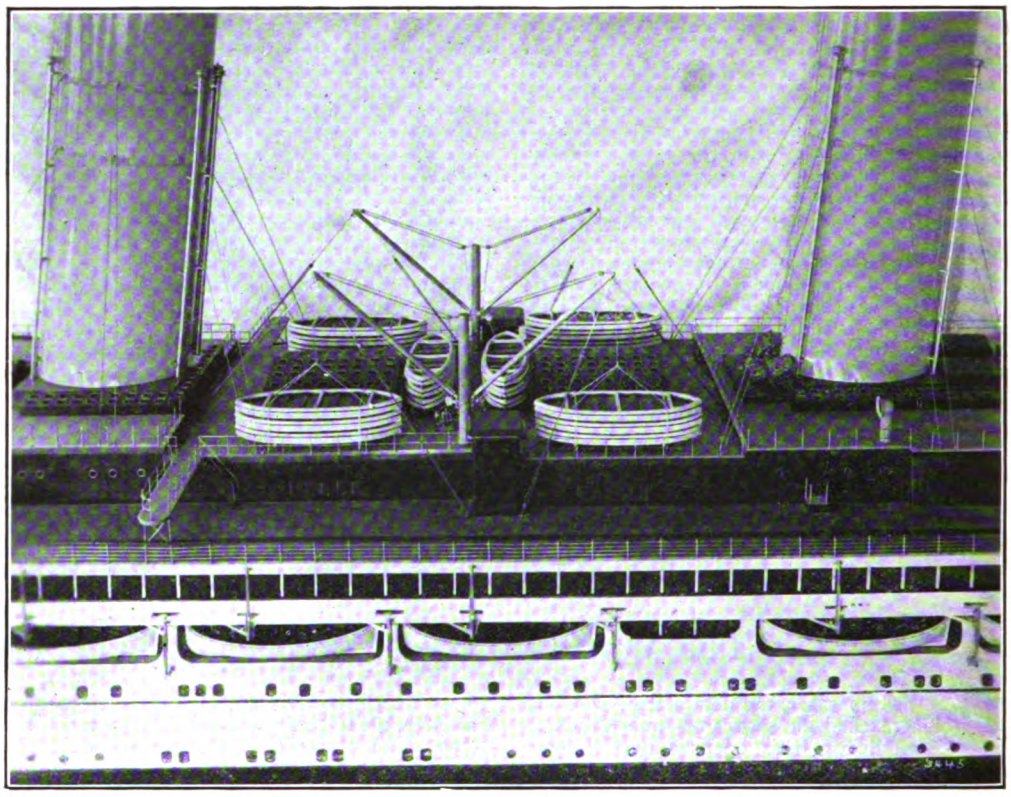

MODERN METHOD OF LAUNCHING LIFEBOATS.

dens, public baths and luxurious lounges. The leading decorators of Europe have been entrusted with the decorations of the Imperator's cabins, and each is a masterpiece in its individual style. The great size of the Imperator has made it possible to give her some of the most spacious rooms ever enjoyed on shipboard. The main lounge, which may be converted into a ball room, is hung with Goblin tapestries and equipped with a practical stage for theatrical performances. An unusual amount of space has been set aside for an elaborate winter garden with a wealth of tropical vegetation. There is a running track, an elaborate Roman bath and swimming pool, and a variety of Russian, mineral and electric baths with skilled attendants, a florist, candy and book shop, a public stenographer, a photographic dark room, electric elevators, and every conceivable appointment to assure luxury and variety throughout the Atlantic crossing.

The Imperator has been constructed with sixteen steel bulkheads, forming in all thirty-six water-tight compartments. These are still further subdivided by the steel decks, giving the ship a cellular construction throughout. The bulkheads have been carried to the level of the second deck, high above the water line. A single bulkhead weighs 1,200 hundredweight. These steel compartments have been completely flooded with water to test their efficiency under extreme conditions. The bulkheads are fitted with Dorrscher doors and closing appliances operated hydraulically from the commander's bridge, while a second appliance operated from the upper deck is held in reserve.

The Imperator carries eighty-three large life boats of the most approved type, accommodating everyone on board. Two of these are high-powered motor boats, capable of towing the others. The motor boats are equipped with wireless telegraph working over 200 miles. Many of these boats are carried on the upper deck between the funnels, and may be lowered by special cranes to either side of the boat. The apparatus employed for handling all these boats is of the newest type, making it possible to lower a boat from an upper deck in a few seconds. The safety equipment also includes life belts for everybody and illuminated life buoys. The efficiency of all apparatus is assured by frequent drills and rigid discipline.

In every detail of its construction, the Imperator more than conforms to the laws governing shipbuilding, both in America and Europe. It has been built according to the regulations laid down by the Germanian Lloyd for the first class, four screw, passenger and freight steamers, and has been equipped with every appliance required for emigrant ships by the German laws, the Marine Association, the Sailors' regulations, and the English and American emigrant laws. In the construction of the Imperator 1,800 workmen were engaged for three years of for a total of more than 1,000,000 working days. The contract was given to the Vulcan Works at Hamburg, June 18, 1910, and the ship was christened by His Majesty Kaiser William II and launched May 23, 1912. Some idea of the magnitude of the work may be gained from the fact that her sides are built upon 327 steel ribs, on either side, each measuring 26 metres in length and weighing 30 hundredweight. The weight of the steel plates,

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angles, profiles, sheet iron, etc., totals 520,000 hundredweight. More than 2,000,000 steel rivets have been used in her construction, each weighing eleven pounds. More than 60,000 cubic metres of different kinds of wood have been used.

The Imperator has a commander, an executive captain, and three watch captains, one in special charge of navigation and another of the safety conditions, assisted by seven officers. The engineering department is directed by one chief engineer, three first engineers as watch engineers, and a staff of 25 engineers and electricians.

The wireless telegraph equipment of the Imperator is sufficiently powerful to work over a range of 1,500 sea miles. The ship has two reserve antennæ and two receiving instruments for long and short waves, designed for news service and rescue work. The station is directed by three expert operators, one of whom will always be at the key. The Imperator will be within direct communication with land through the Atlantic crossing. The electrical equipment of the Imperator is unusually complete. Current is developed by five Turbo dynamos and a motor dynamo driven by a benzine motor placed high above the water line on the boat deck for emergency lighting. The ship is lighted by more than 10,000 electric lamps, distributed throughout the ship. Electrical power is employed for operating the four passenger and five provision elevators, the winches, pivotal cranes, call bells, heating, etc.

The Imperator is propelled by mammoth quadruple turbine engines developing 62,000 horsepower. She has four winged screws of turbadium bronze, measuring more than five metres in diameter, which turn at a normal speed of 185 revolutions per minute. The machinery for reversing the engines is especially efficient, enabling her commander to direct her movements more quickly than that of ships of far less tonnage. The backward moving power of all the reverse turbines is about 35,000 horsepower. The ship has four furnace rooms which are divided into watertight compartments by transverse and longitudinal bulkheads.

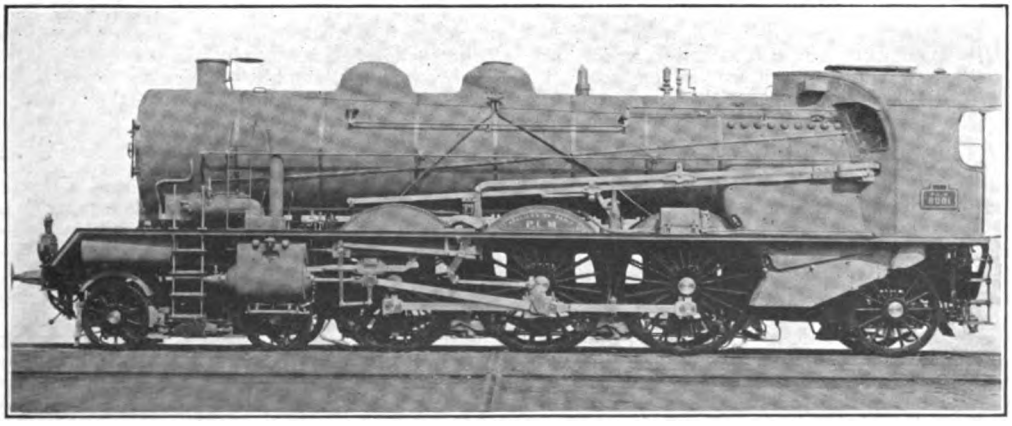
The Imperator carries five great anchors which are secured by steel chains having a total length of three quarters of a mile. The main anchor weighs 26,455 pounds, her two bow anchors 17,636 pounds, a fourth 11,463 pounds and her warp anchor 4,960 pounds. The anchors and chains together have a total weight of 485,082 pounds which alone makes an important item of cargo.

The Imperator carries a number of compasses distributed on the commander's bridge, in the filter space on the third deck and in the rudder house at the stern. The equipment includes an Anschutz revolving compass, consisting of a "mother compass," two motor generators with starters, revolution recorders, and division tables. There are four "daughter compasses" which serve as azimuth and steering compasses besides four magnetic compasses provided as an emergency outfit, including one azimuth compass and three steerage compasses.

To assure a pleasant crossing in all extremes of weather, the Imperator has been equipped with the Schlinger tanks or wave motion absorbers. This stabilizing device when tested on smaller steamers has reduced the rolling motion from thirteen degrees from the vertical to less than three degrees. The great size of the Imperator renders her naturally very steady in the highest seas, and assisted by the anti-rolling tank, she will be doubtless one of the steadiest ships in the world.

A Show Locomotive at Ghent, Belgium

AMONGST the locomotives now being shown at the International and Universal Exhibition at Ghent, Belgium, is one of a type built in the Paris works of the Paris-Lyons-Mediterranean Company for hauling heavy express trains and was designed by this company in 1909, originally as a compound engine using saturated steam. The first engine built was compared in ordinary working service with a non-compound engine of the same power, having four equal cylinders, and using superheated steam. Experience having shown the superiority of the single-expansion engines using superheated steam over the compound type using saturated steam, the



PARIS-LYONS-MEDITERRANEAN EXPRESS LOCOMOTIVE, NOW ON EXHIBITION AT GHENT (BELGIUM) UNIVERSAL EXHIBITION.

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company built a number of the former. A third type of equal power, but compound and using superheated steam, having shown itself much superior to both the above named types, it was decided to transform the locomotives of the compound type using saturated steam into a compound type using superheated steam, keeping as closely as possible to the design of the third type above referred to. The engine so transformed is the one exhibited.

The boiler is built up throughout of mild-steel plates with the exception of the firebox, which is of copper. The firebox shell, which overhangs the frame is in three plates, the crown and the two sides, connected together by double riveting. Hollow steel stays connect the crown of the outside shell to the firebox crown, and a row of transverse stays, drilled out for a lengtth of 194 mm. (7.6 inches) at each end, run across from side to side to support the flat part of the shell-plating not supported by the firebox stay bolts. The front and back firebox plates are inclined. The copper firebox is connected to the shell by manganese bronze stays, except for the portion of the sides located beneath the firebrick arch, where the stays are of copper. The firebox tube plate is connected to the boiler shell by ten steel palm stays.

The boiler barrel is built up of three rings; the longitudinal seams are butt-joined with double straps, and the transverse seams are double-riveted lap-joints. The firebox door is hinged horizontally and opens upwards and inwards; it consists of three leaves; the two end leaves are opened by separate levers; the central leaf butts on both the other two and is opened together with either one of them. The superheater is of the Schmidt type.

The frames are of steel, 28mm. (1.1 inches) thick; they are connected together by a front buffer beam consisting of a rolled steel girder, by a rear beam built up of plates and angles, by six intermediate transverse stays of cast steel, and by the inside cylinders. The front bogie truck is of the usual type. The Bissel bogie at the trailing end is built up of two sets of horn-blocks in small frames, connected together at the top by a strong transverse beam of cast steel, and at the front and back ends by two smaller beams. The small plate frames extend in front of the front beam towards the center line of the main frame, and join a V piece to which they are riveted, and which carries the eye for the radius-pin; this latter is 1.9 m. (6 feet 3 inches) in front of the bogie axle. The locomotive underframe rests by a spherical center bearing upon the cross bearer of the Bissel chassis. The center pin socket rests on a seating supported on crossed inclined surfaces, and is carried in guides curved to a radius struck from the radius pin. By this means an angular displacement of the Bissel bogie slightly raises the rear part of the engine. The Bissel bogie has a lateral play of 66mm. (2.6 inches.) on each side. The load is transmitted to the Bissel truck axle by two helical springs on either side, each pair of springs being connected by an equalizer beam suspended from the lower part of the corresponding axle box.

The driving wheels are 2m. (6 feet 6 11-16 inches) in diameter at the tread. The axles are of steel, with inside journals, and are hollow for the whole length. The front drving axle coupled to the low pressure inside cylinders is cranked. The wheel centers are steel castings. The axle boxes are also steel castings, the steel having a breaking strain of 60kg. per square mm. (38 tons of 2,240 pounds each, per square inch), with a 12 per cent elongation. The bearings are of brass, lined with white metal. The axle boxes are provided underneath with spring lubricating oil pads, no other provision being made for the lubrication of the axle journals. The horn blocks are riveted to the frames; they are steel castings and are fitted with cast iron faces. Wedges worked by screws allow of taking up for the wear of the axle boxes in the guides. The frame is suspended from the axle boxes on laminated springs connected by equalizing bars and adjustable spring hangers.

The inside low pressure cylinders drive the leading crank axle; the outside high pressure cylinders drive the second axle. The cranks are 90 degrees apart, and the axles are set so that cranks on the same side of the centers are 180 degrees apart. The pistons are steel castings; the piston rods are of forged steel. The crossheads are steel castings, having castiron slippers lined with white metal. The crosshead guides are of hard, forged steel, having a breaking strength of 55kg. per square mm. (35 tons per square inch) with an elongation of 20 per cent. The connecting and coupling rods are of steel, with brass bearings lined with white metal.

The valve gear is of the Walschaert type. The slide valves are cylindrical, with inside admission; an air inlet valve is fitted on the main steam pipe and on the pipe which forms the intermediate receiver. The reversing mechanism is a screw gear provided with the ordinary type of hand wheel the nut on the screw working the reversing rod of the high-pressure cylinders; the reversing rod of the low pressure cylinders is worked when the nut above referred to has moved a certain distance on either side of its normal position. There are two reversing rods for the link motion, that for the high pressure cylinders connected to the screwed nut, and that for the low pressure cylinders connected to pins on a frame moved by the high pressure reversing rod nut. A dash pot is also provided consisting of a cylinder containing a liquid in which works a piston connected by means of levers to the reversing bar of the low pressure cylinder slide valves.

Steam is taken from the boiler through a regulator provided with a balanced valve, and located inside the steam dome. It flows thence into a compartment of the header in the smoke box which distributes it into the twenty-eight elements of the Schmidt superheater, then flowing into the second compartment of the header or collector, whence it flows to the high pressure cylinders through two pipes connected to the two ends of this latter compartment. The slide valves and the air pump are lubricated by a sight feed lubricator fitted to the firebox back plate and consisting of an oil receiver and a distributor. Each cylinder is also provided with a ball lubricator.

A counter pressure cock fitted to the boiler, and having a handle within easy reach of the driver, takes water and steam through a bent pipe, the lower part of which is provided with a hole; the pipe enters the firebox and bends upwards above the water level. A second pipe, starting from the cock supplies the mixture of water and steam to the exhaust of the low pressure cylinders.

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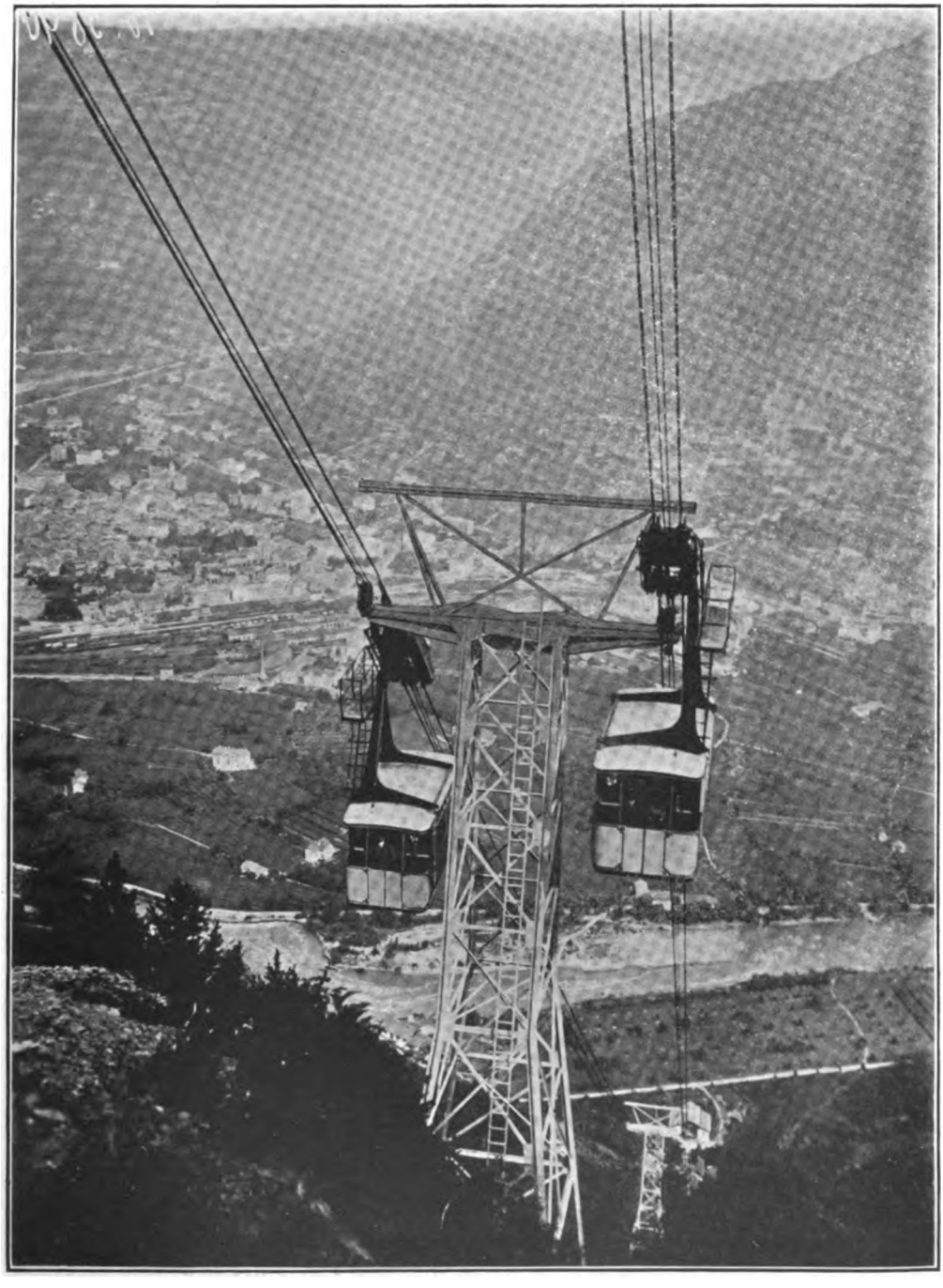
The Kohlerer Aerial Ropeway of Switzerland

THE Kohlerer (Switzerland) aerial line has a total length of 5,500 feet carried by 12 structural steel supports, the highest of which is about 90 feet above the ground, and a distance of about 1,433 feet from the lower station.

The passenger cars are each capable of holding 15 passengers and the driver and two cars travel simultaneously each way at one time. The speed is about 10 feet per second and such that in thirteen minutes a difference of level of 2,800 feet is traveled each car being pulled by two traction



CARS PASSING ON THE KOHLERER AERIAL RAILWAY.

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cables which are operated from a power station placed close to the line. The object of duplicating the cables is to secure safety in case of the breakdown of one of the cables, and the same means is adopted in connection with the suspension cables.

The cars are supported from a traveling mechanism carried by eight pulleys. Each of the steel cables on which those pulleys travel are about 1.76 inches in diameter. The cars can swing like a pendulum while a brake retards any due oscillation. All fear of derailment due to oscillation sideways is avoided by the fact that the carrying cables themselves swing with the car. The drive is by electric motors, and in order to secure immunity from breakdown of the transmission system even if the power plant fails to operate a storage battery is installed which op-

THE HIGHEST SUPPORT ON THE KOHLERER AERIAL RAILWAY.

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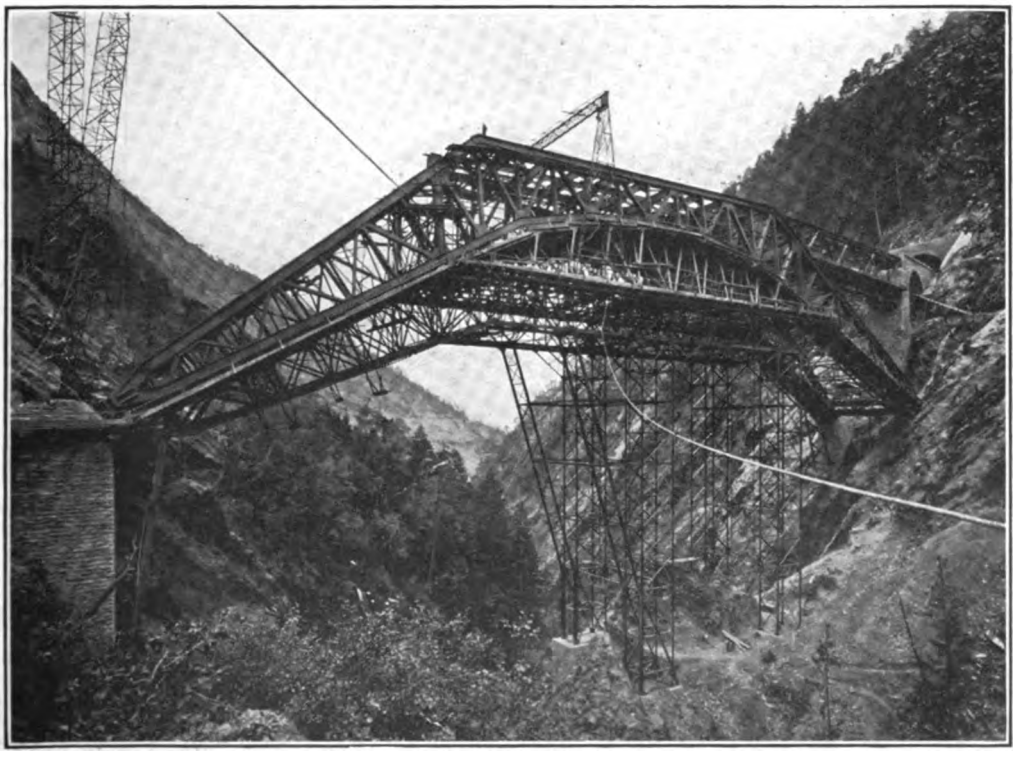
erates in parallel with the generator. To provide communication, a system of telephones and electric signals is installed throughout the track, and the driver from any part of the line can communicate with either the upper or lower terminal station.

The cars cannot be started before the necessary signals have been given between the two stations and confirmed so that there is no danger of mistake. In addition to this, safety is most efficiently studied in connection with every detail of the equipment. The traveling mechanism of the car contains two braking arrangements which operate automatically if there is an excess of speed. The same device operates if the carrying cable breaks or if a break should occur on either one or both of the hauling cables. Besides being automatic, the operator can put the brakes into service by hand, the operation being simple and quick, and when this catching device is put into action steel jaws grip the carrying cables at eight different places and the friction is sufficient to hold the car firmly in position even on an incline. Simultaneously, by the movement of the same mechanism, the supply of electricity to the driving motor is stopped and the brake is instantly applied. To provide further security and insure the safety of the passengers in the event of a breakdown, there is a space car kept at each station in readiness to go to the point where the ordinary car is left suspended, transferring the passengers and bringing them back to the nearest available station.

The regular passenger car is also fitted with a special device in the floor by means of which it is possible to lower the passengers to the ground from the car direct. This hoist is fitted with a brake to prevent undue speed of the descent and should the driving gear of the whole line break down, thus stranding the cars in the middle of the route, an auxiliary winder is available for bringing the cars back to their terminal position. The towers which support the cables vary in height from about 25 feet to 90 feet.

Bridge and Viaduct Construction on the Bernese Alps Electric Railway

ON the Bernese Alps electric railway from Frutigen to Brig, a remarkable bridge known as the Bietschtalbracke has recently been completed. This bridge, as well as several important viaducts on this line are of special interest, the former particularly on account of its peculiar construction as indicated in the accompanying illustration. In the frame work used in constructing this bridge, 330 tons of iron and steel were used while the bridge itself weighs 900 tons, and was completed about February 1st, 1913, or a year and a half after operations were begun. In its erection two steam derricks were used, each having a radius of action of about



A Remarkable Bridge on the New Bernese Alps Electric Railway.

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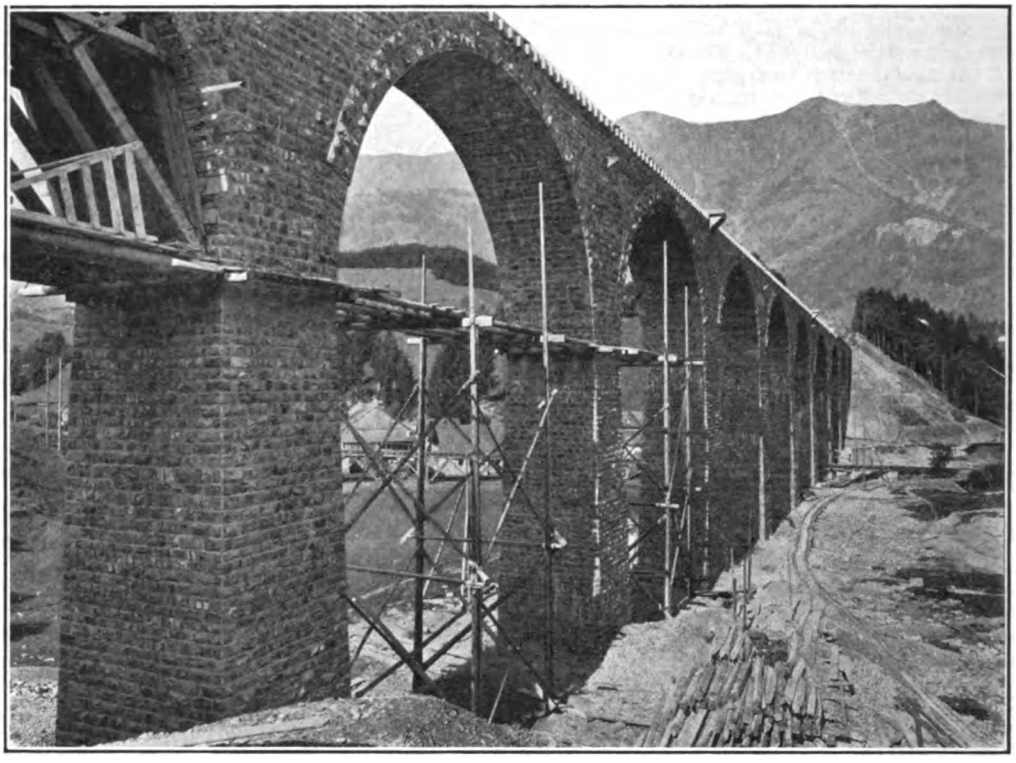

A VIADUCT OF THE NEW BERNESE ALPS ELECTRIC RAILWAY.

ELECTRIC OVERHEAD AND TRACK EQUIPMENT OF THE NEW BERNESE ALPS ELECTRIC RAILWAY.

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831-3 feet, and of the 125,000 rivets used about 50,000 rivets were driven into place by pneumatic hammers.

Thirty years ago the Bernese Alps electric railway pierced the granite rampart of the Alps for the first time, in order to build a railroad through the Gotthard, by which to easily reach Italy. Since that time numerous railways and tunnels havs been constructed which show convincingly the skill of the engineers and the hardiness of the workmen. The Gotthard tunnel which is about 9½ miles long, has been out-distanced by the Simplon tunnel, and the grandest projects for bridges viaducts have been realized in the new railway Berne-Lotschberg Simplon, which will be opened this spring.

The Bernese-Alps Railway Berne-Loetschberg-Simplon, combines the finest technical construction with wonderful scenery in a superlative degree. The new railway, which leads through the Bernese Alps from Frutigen to Brigue in the valley of the Rhone, connects first the surroundings of the lake of Thoune, Berne and Interlaken. In other words, it connects the Bernese Oberland, with the upper part of the canton of Valais, the upper valley of the Rhone especially, also the great mountain and tourist centres of Zermatt and Saas-Fee. It passes as well through the Simplon tunnel to the lovely "Lago Maggiore" to the Borromee Islands and to Milan, Turin and Genoa, the industrial and commercial centers of upper Italy. It offers for travelers from England, Belgium, France and Germany to Italy a route which is in no way inferior to the Gotthard line and has the advantage of enabling one to have a very comfortable and completely smokeless journey, since it is operated by electricity and so is also the Simplon tunnel, which was opened in 1906.

After having passed the Kander on a high viaduct, the new line Frutigen Brigue rises slowly on the mountain slope describing a great double curve partly in a spiral tunnel near the "Blue Lake."

From the Kandersteg the railway runs above the serpentines of the highway and passes over the waterfalls of the Kander along the valley. During the whole journey travelers become fascinated by the ice clad mountain giants Altels, Dalmhorn, Rinderhorn and Doldenhorner, the summit of the Bluemlisalp and the rocky giants Bierre and Risistock, which all surrounds the lovely village of Kandersteg.

The main tunnel (about 48,683 feet long) runs through the Risitock and underneath the Gasterntal and the Loetschen pass, reaching the southern end at Goppenstein in the Loetschental (Valais). Beyond Goppenstein, the Loetschental with the gigantic Bietschhorn, opens in a large wonderful Alpine valley of original character, which till now like few valleys, has hardly come in contact with the tourist traffic. Little below Goppenstein near Hothen, the railway enters the valley of the Rhone about 1,333 feet above the bottom of the valley.

It will be seen that the traveler has here an incomparable and wonderful view over the valley of the Rhone in the depth below him, upon the splendid numerous brown villages and cottages with their white churches. The line slopes gradually down to Brigue, passing over numerous large viaducts and deep ravines of the northern tributaries of the Rhone, piercing through the projecting rocks by twenty-one tunnels.

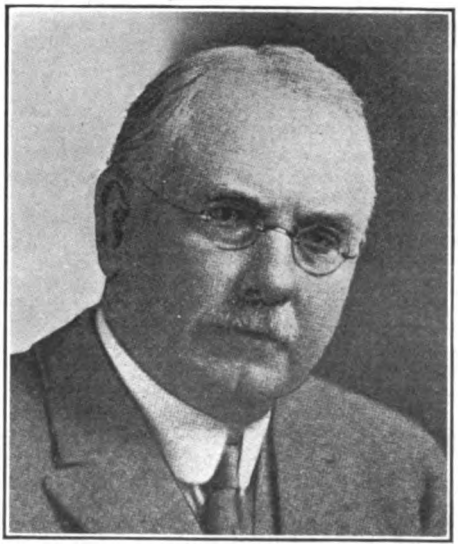
Personal

W. J. Jackson.

WILLIAM J. JACKSON, who for the past three years has been vice-president and general manager of the Chicago and Eastern Illinois, and who recently was made one of the receivers for the road, has now become president, having been elected at the annual meeting of that road on June 5. He succeeds B. L. Winchell who, as recorded elsewhere, has been appointed one of the receivers of the St. Louis and San Francisco.

Mr. Jackson's continuous connection with the Chicago and Eastern Illinois dates from 1891 when he entered the service of that road as assistant local freight agent at Chicago. He was born at Toronto, Ont., in 1859, and after a grammar and normal school education, entered railway service in 1877, as machinist's helper in the Grand Trunk shops at Toronto. After serving in this position for a few months, he was made freight clerk at Toronto, which position he held for three years and for three years more was chief claim clerk of the Chicago and Grand Trunk at Chicago. From 1885 to 1890 he was general freight foreman of this road, and from 1890 to 1891, assistant agent. As above noted, he entered the service of the Chicago and Eastern Illinois in 1891 as assistant local freight agent. In 1893 he became local agent, in 1899 assistant general superintendent, in 1903 general superintendent, in 1906 general manager and in 1909, at the time of the separation of the Rock Island and Frisco systems, he was made vice-president and general manager.

Mr. Jackson has engaged in important railway work outside of his immediate position, having



W. J. JACKSON.

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been chairman of the special committee on Relation of Railway Operation to Legislation, since the death of F. O. Melcher in January of last year. He has also had considerable experience in labor negotiations, and in 1910 was appointed by Governor Deenen as a member of the Employers' Liability Commission for that State.

Benjamin Campbell.

BENJAMIN CAMPBELL has been appointed vice-president of the Boston and Maine Railway, in charge of the traffic department, with headquarters at Boston, Mass. Mr. Campbell was connected with the Union Pacific System from 1884 to 1905, and in the latter year became fourth vice-president of the Great Northern Railway Company. He entered the service of the New Haven road early in 1907,

BENJAMIN CAMPBELL.

and at the time of his recent appointment was located at New Haven, Conn., as vice-president in charge of the traffic department.

P. H. Morrissey.

P. H. MORRISSEY, until recently president of the American Railroad Employes and Investors Association, has been appointed assistant to the vice-president in charge of operation of the Chicago, Burlington and Quincy, with headquarters at Chicago. Mr. Morrissey was born September 11, 1862, at Bloomington, Ill. He began railway work in 1879 as call boy in the locomotive department of the Chicago and Alton at Bloomington, and the following year entered the train service as a passenger brakeman. Subsequently he was freight brakeman and freight conductor. He left active railway service in 1890 to assume the position of vice-grand master of the Brotherhood of Railroad Trainmen, which organization he had joined in February, 1885. He continued in that capacity until August 1, 1895, when he became general master, which office he retained until January 1, 1909, at which time he was elected president of the American Employes and Investors Association. Within recent years Mr. Morrissey has served as arbitrator in a large number of wage controversies between railways and employes. In 1910, with Interstate Commerce Commissioner E. E. Clark, he arbitrated the demands of the conductors and trainmen on the New York Central and Hudson River, making an award which was later adopted by other lines. He also represented the enginemen in the arbitration proceedings begun in Eastern territory in May, 1912, and arbitrated the demands of the enginemen, firemen, conductors and trainmen on the Coal and Coke Railway, under the Erdman act in 1911.

P. H. MORRISSEY.

J. T. Morrison.

J. T. MORRISON, who was recently elected vice-president of the Pullman Railroad Company, with offices at Chicago, entered railway service in 1889, as messenger boy for the Burlington. In 1892, he went with the Chi-

J. T. MORRISON.

cago, Milwaukee and St. Paul as contracting and traveling freight agent at St. Louis, and in 1895

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became chief clerk to E. S. Keeley, now vice-president of that road. He remained in this position until 1901 and then left the railway service to become traffic manager for the Racine Wagon and Carriage Company, with whom he stayed until 1908 when he became secretary and traffic manager of the National Implement and Vehicle Manufacturers' Association. On April 15, 1912, he again entered railway service as traffic manager of the Pullman Railroad, which position he held until his recent election to the vice-presidency of that company.

George T. Bell.

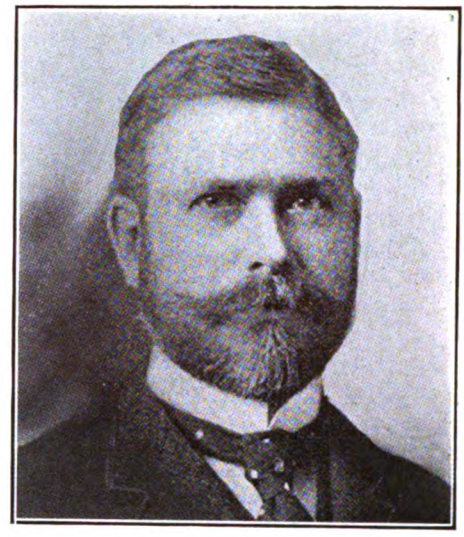
GEORGE T. BELL, who was recently appointed passenger traffic manager of the Grand Trunk Railway, was born at Montreal, Quebec, on September 7, 1861. His first railway position was with the Great Western

GEORGE T. BELL.

Railway in 1878 and in 1880 he joined the passenger department as stenographer to the general passenger agent at Hamilton, Ont. He was afterwards at Toronto as chief clerk to the assistant general passenger agent; January 1, 1885, to April 25, 1892, chief clerk to general passenger agent; April 25, 1892, to April 1, 1896, assistant general passenger agent same road; April 1, 1896, to August 1, 1899, assistant general passenger and ticket agent; August 1, 1899, to May 1, 1900, first assistant general passenger and ticket agent at Chicago; May 1, 1900, to May 1, 1909, general passenger and ticket agent at Montreal; August 15, 1908, to May 1, 1909, also general passenger and ticket agent of the Grand Trunk Pacific Railway; May 1, 1909, until this recent appointment, assistant passenger traffic manager, Grand Trunk Railway system, and Grand Trunk Pacific Railway.

W. C. Stith.

WILMER C. STITH, recently appointed traffic manager of the Terminal Railroad Association of St. Louis, was born in that city in 1858, and began railway service in 1877 in the general freight office of the St. Louis, Iron Mountain and Southern. In 1886, he was



W. C. STITH.

made assistant general freight agent of the Missouri Pacific, and from 1890 to 1892, was general freight agent of the Kansas City, Fort Scott and Memphis, with headquarters at Kansas City. He returned to the Missouri Pacific system in the latter year as general freight agent, and in 1899 was promoted to freight traffic manager. In 1908, he became traffic manager of the Waters Pierce Oil Company. For the last two years he has been engaged in special traffic work, the last few months of which having been spent with the Terminal Railroad Association.

C. E. Perkins.

C. E. PERKINS has been appointed assistant general traffic manager of the Missouri Pacific with headquarters at St. Louis. He was born in 1871 and began railway work in 1891 as office boy in the freight office of the Kansas City, Fort Scott and Memphis at Kansas City.

C. E. PERKINS.

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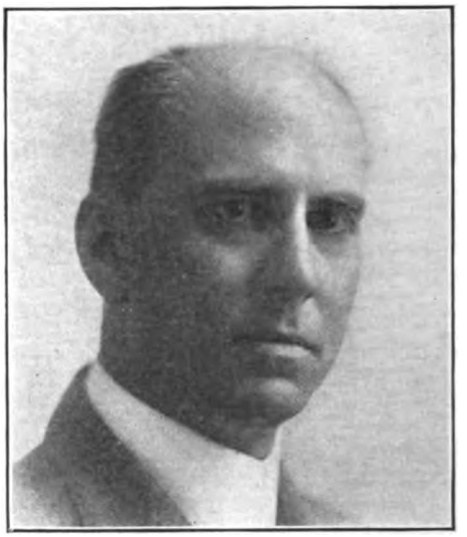
In 1896 he went to the St. Louis and San Francisco as chief clerk to the general agent at Kansas City and in 1897 he was made chief tariff clerk for the Kansas City, Pittsburg and Gulf, now known as the Kansas City Southern. He was afterwards made chief clerk in the freight department, and later was appointed assistant general freight agent. For a time he was stationed at Texarkana, Ark., as assistant general freight agent and also as general freight agent of the Texas line of that road. In 1906 he was again transferred to Kansas City as assistant general freight agent, and in March, 1909, he went to the St. Louis, Iron Mountain and Southern as assistant general freight agent at St. Louis. He was made general freight agent of the Iron Mountain on January 1, 1910.

W. G. Barnwell.

WALTER G. BARNWELL, recently appointed assistant freight traffic manager of the Atchison Coast Lines, with headquarters at San Francisco, was born in 1865, at Danville, Quebec. He began railway work in 1881 as agent in the office of the auditor of freight accounts of the Canadian Atlantic, and from 1884 to 1891, was agent in the superintendent's office of the Fergus Falls division of the Great Northern. From then until 1898, he was with the Southern California, successively as cashier at Redlands, Cal., agent at Santa Ana, Cal., contracting agent and commercial agent. On the latter date he was promoted to general agent of the freight department at Los Angeles, Cal., and in 1900 he was made assistant general freight agent of that road, the Santa Fe Pacific and the San Francisco and San Joaquin Valley, which roads now comprise the Coast Lines of the Atchison, Topeka and Santa Fe. In April, 1905, Mr. Barnwell became general freight agent of the Coast Lines.



Arthur T. Stewart.

ARTHUR T. STEWART, who was recently appointed general freight agent of the Missouri Pacific with office at Kansas City, was born at Humboldt, Kans., in 1872. He entered railway service July 1, 1890, as stenographer for the Rock Island and Pacific at Topeka, Kans., and in 1891, became secretary to the general manager of the St. Louis Southwestern, and in 1892 secretary to the freight traffic manager of the Missouri Pacific. Ten years later he was made assistant general freight agent, and in 1908 became assistant to the vice-president in charge of traffic. In January of the present year, Mr. Stewart was appointed assistant to the general traffic manager with headquarters at St. Louis, which position he held until his recent appointment.

L. D. Knowles.

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L. D. Knowles.

L. D. KNOWLES, who was recently appointed assistant general freight agent of the Missouri Pacific Railway, with headquarters at St. Louis, entered railway service in 1883, as a boy as clerk in the Michigan Central local freight office, at Grand Rapids. He was promoted from various positions, becoming assistant cashier in 1886. From the latter part of that year until 1890 he was chief clerk to the general agent of the Grand Rapids and Indiana at Grand Rapids, Michigan, and in 1890 became contracting agent and traveling freight agent of the Mississippi Valley Route. From 1891 to 1895, he was traveling freight agent of the Cotton Belt Route, and from 1895 to 1903, contracting agent for the Missouri Pacific Railway. From the latter year until 1908, he was general agent of the Gould Lines, with headquarters at Milwaukee, and from 1908 to September, 1912, general agent of the Missouri Pacific at Denver. He was transferred on the latter date to Pittsburgh as the general agent of the same company, and on May 20th, 1913, was made assistant general freight agent at Omaha, Nebraska, as above noted.

Henry P. Anewalt.

HENRY P. ANEWALT has been appointed general freight agent of the Santa Fe Coast Lines. He was born in Allentown, Pa., in 1868, and began railway work in 1885 as clerk and engineer of the Santa Fe's local freight office at Kansas City. He was later successively chief clerk in the commercial office and contracting agent at that place, and subsequently became general freight and passenger agent of the Santa Fe, Prescott and Phoenix at Prescott, Ariz., until April, 1905. He was then appointed assistant general freight agent of the Coast Lines of the Atchison, Topeka and Santa Fe, with office at San Francisco, Cal. He remained in this position until June 1, 1913.

H. P. ANEWALT.

Cecil A. Preston.

CECIL A. PRESTON, who was recently appointed valuation engineer for the Pennsylvania Railroad, was born at Philadelphia, Pa., September 16, 1852, of English parents. He was educated at the public schools and the Polytechnic College of Philadelphia, graduating from the latter institution in 1872.

Mr. Preston entered the service of the Pennsylvania Railroad in May, 1879, and was employed on surveys for the Catonsville Railroad and for changing alignment and grades for the West Pennsylvania Railroad. In September, 1880, he was transferred to Baltimore, as assistant supervisor of the Baltimore section of the Northern Central Railway. In November, 1880, he resigned and accepted the position of principal assistant engineer of the Mexican National Construction Company, being assigned to the Pacific Coast Division.

After active service of eighteen months in Mexico upon preliminary surveys, location and construction, Mr. Preston returned to the United States in April, 1882, and entered the service of the Northern Central Railway as assistant supervisor at York. He was promoted to supervisor on August 1, 1882, and transferred to Baltimore in 1883. On January 1, 1890, he was appointed assistant engineer of the Baltimore division, and on March 1, 1893, promoted to principal assistant engineer of the Philadelphia and Erie Railroad division and the Northern Central Railway. On July 1, 1900, he was promoted to superintendent of the Elmira and Canandaigua division. On April 1, 1902, he was made superintendent of the Eastern and Susquehanna division of the same road, and on June 1, 1903, was promoted to superintendent of the Middle division of the Pennsylvania Railroad division, at Altoona.

L. J. Putnam.

L. J. PUTNAM has been appointed principal assistant engineer of the Chicago and Northwestern with office at Chicago. He was born at Manchester, Ia., in 1878 and graduated from Cornell College, Ia., as civil engineer

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L. J. PUTNAM.

and began railway work in 1898 with the Illinois Central. In 1899 he went with the Chicago and Northwestern as instrument man and from 1901 to 1906, was assistant engineer on construction, location and mainteannce of this road. Later he became acting division engineer of the Ashland division, and from 1910 to 1912, he was with the new line of the Chicago and Northwestern across Wisconsin, as resident engineer on construction, and later as acting resident engineer. In April, 1912, he was promoted to division engineer at Boone.

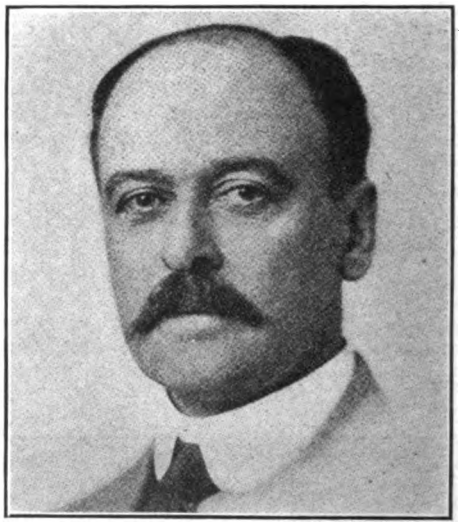
E. G. Chenoweth.

E. G. CHENOWETH, who was recently appointed mechanical engineer of the Chicago, Rock Island and Pacific Railway, was born at Union City, Indiana, in 1873. He graduated from Purdue University in mechanical engineering in 1898 and entered railway work as a special apprentice in the locomotive shops of the Erie Railroad. In 1901 he went to the Pennsylvania Railroad as a draftsman at Altoona, Pa. In 1903 he was with the Pere Marquette Railroad in a similar capacity, and later with the Lake Shore and Michigan Southern Railroad and Philadelphia and Reading Railway. He returned to the Erie Railroad at Meadville, Pa., as draftsman, was appointed mechanical engineer and served in that position six years until he came to the Rock Island in July, 1912, as assistant superintendent of the car department. Mr. Chenoweth was promoted to mechanical engineer in charge of car designing, as already noted, June 1, 1913.

E. G. CHENOWETH.

N. E. Brooks.

N. E. BROOKS, recently appointed maintenance of way engineer for the Western lines of the Canadian Pacific Railway, was born at Sherbrooke, Que., in 1866. He began work with the Canadian Pacific Railway as chainman in 1887, on the Ontario and Quebec branch. In 1888 he served as rodman and resident engineer of construction on the Atlantic and Northwest branch of that road. From 1889 to 1893 he was transitman and resident engineer in connection with surveys and construction of the Calgary and Edmonton and MacLeod and Crows Nest branches of the Canadian Pacific, and from 1893 to 1903, representative of the bondholders in connection with the Calgary and Edmonton lines, with headquarters at Calgary, Alta. From 1903 to 1910 he was division engineer of the western division and since 1910, until his recent appointment, has been division engineer of the Alberta division, with headquarters at Calgary.



N. E. BROOKS.

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Financial

The Currency Question.

INTEREST in financial circles has shifted from the tariff to the currency question. The administration's bill for reform of the banking system, introduced by Representative Carter Glass (Virginia) of the House Banking and Currency Committee, provides for the creation of twelve so-called federal reserve banks, one in each of twelve geographical districts. The ownership of these banks is to be in the hands of the State and National Bank of each district; the National Banks are compelled to be members, and the State Banks and Trust Companies are permitted to be members. The capitalization of the federal reserve banks is to be twenty per cent of the capital of the stock holding banks, one-half paid in and one-half subject to call. These federal reserve banks are to confine themselves to the re-discounting of paper for their stockholders, buying and selling government securities, coin and bullion, foreign exchange and bills of a good maturity, and government fiscal operations. These federal reserve banks are to be authorized to issue $500,000,000 of federal reserve treasury notes, secured upon short time paper and other liquid collateral, and in addition by a reserve of 33 1-3 per cent of gold. These notes will, on their face, be obligations of the United States, but their security will be provided by the issuing bank. Existing notes of national banks are left undisturbed but provision is made for their gradual retirement, by prohibiting any further increase. The control of the system is tested in a federal reserve board of seven members including the Secretary of the Treasury, Secretary of Agriculture, and the Comptroller of the Currency, together with four other members chosen by the President. The most important duty of this reserve board will be to fix the rate of discount for the federal reserve bank. The federal reserve bank will be the depositary of the current funds of the treasury, and all government creditors will be paid by checks on these deposits. In addition to government deposits, all legal reserves from existing national banks in reserve and central reserve cities, over a period of 38 months, will be transferred to the national reserve banks. This feature of the plan is intended to end the concentration of reserves in central reserve city banks for use in stock market operations.

It is too early to discover how this measure will be received by the country. It bears, in many of its features, a striking resemblance to the Aldrich plan. It is certain to result, if put into effect, in removing a large amount of money from New York with the result that the New York banks will have to supply these funds from other sources, since they can no longer draw upon the legal reserve of the national banks. The re-discounting feature is nothing new. Banks already have the right to re-discount, but few of them take advantage of the privilege because of the injurious effect upon their credit. Some exceptions have been taken to the scheme of control provided by the bill, on the ground that the bank might be used for political purposes. We do not believe that there would be the slightest danger of this. It is inconceivable that any administration should sink so low as to use its power over the currency and credit of the country to further political ends. To believe this is to admit the complete absence of belief in the ability of republican institutions to produce honest and responsible officials.

Liquidation of Securities.

THE past month has witnessed a severe liquidation of securities with resulting heavy shrinkage in value. The last week in May saw the St. Louis and San Francisco properties placed in the hands of receivers. This event was preceded by heavy declines in the prices of stocks and bonds of this company which exerted a most depressing effect, extending to the foreign market for American securities. With the following week urgent liquidation broke out which brought security values down to the lowest values of recent years. Transactions were on a very large scale and declines were numerous.

Transactions on Wednesday, June 5, amounted to almost 780,000 shares and the declines in many prominent issues ranged from five to seven points. Europe is estimated to have sold over 100,000 shares in American stocks on this day, and these heavy foreign sales, coming on top of a market greatly weakened by the pressure of domestic liquidation, developed a highly critical situation. The explanation of these European sales is that the New York market at the present time, weak though it is, is strong in comparison with foreign markets and offers the best place for the liquidation of securities on a satisfactory basis. Americans are prone to overlook the importance of foreign supply and foreign demand which are most potent influences upon security values in this country.

The foreign security markets, as above remarked, are at this time in an exceptionally depressed condition. Out of the total of $134,000,000 of high grade securities offered in London during May, less than $15,000,000 was subscribed by the public, the balance being left in the hands of underwriters. The only issue which was well received abroad was the Chinese loan which was offered on a five per cent basis with the backing of five great powers.

Since peace has been signed between the Balkan allies and Turkey, the political tension has been relieved, but pressure is still being exerted upon Bulgaria and Servia to induce them to compose their differences. Apprehensions of a renewal of hostilities in the Balkan Peninsula will not be allayed until the armies of Bulgaria, Servia and Greece have been put on a peace footing. Later in the month the stock market was again adversely affected by the announcement in the Minnesota rate cases. Liquidation had, however, spent its force and the closing days of the month have seen a recovery to higher values upon a small amount of transactions.

High Yields on Stock.

IT is interesting to note the high yields which many leading stocks now offer the investor At the low point on June 5th Amalgamated Copper yielded 9 per cent, Atchison 6.3 per cent,

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Baltimore and Ohio 6.5 per cent, Brooklyn Rapid Transit 6.8 per cent, Illinois Central, 6.3 per cent, Lehigh Valley 6.7 per cent, New York Central 6.1 per cent, Southern Pacific 6.5 per cent, Union Pacific 7 per cent, United States Steel 9.3 per cent, United States Steel preferred 6.7 per cent. The prices indicated by these yields are too low and are already beginning to attract the bargain hunters who wait for such favorable opportunities before taking their money out of high grade bonds or out of a savings bank. We believe that stock values have reached the bottom.

The Bond Market.

JUNE has been an unusually bad month in the bond market. During the first two weeks the average price of twenty-five representative railroad bonds declined nearly a point. Since the first of the year this average shows a decline of 4½ points. The principal news events of the month in railroad bonds was the sale by the Baltimore and Ohio of $20,000,000 one-year 5 per cent notes, and the sale of an equal amount of 5 per cent notes by the Southern Pacific. The Baltimore and Ohio sale was made necessary to take care of $11,557,000 Cincinnati, Hamilton and Dayton notes maturing on July 1st, which the Baltimore and Ohio had guaranteed. The Pennsylvania also offered $19,700,000 equipment certificates on a five per cent basis.

Several bond issues of the second class showed serious declines, a fall in Rock Island collateral 4 per cent being the most serious. At the lowest price reached, these collateral trust bonds yielded over 8½ per cent, a lower price than during the panic of 1907. A decline in these securities has aroused much uneasiness. A similar fall in the issues of the St. Louis and San Francisco presaged a receivership. It is not believed, however, that the Rock Island Railroad Company will default on its bonds. The railway system is now earning a sufficient amount to pay interest and is doing much better than last year. A default on these collaterals, moreover, would probably result in a loss of control by the present interests and the sale of the railway company's stock which is deposited as collateral for the bonds. The sale of this stock would not pay off the bonds, and would wipe out the $90,000,000 Rock Island Company common and $50,000,000 preferred. It is evident that if a default can be avoided the controlling interest of the Rock Island will not permit it to occur.

Missouri Pacific securities have been under pressure in spite of the fact that the earnings of the company are at the highest point in its history. Its 5 per cent notes due June 1st, 1914, have been sold on a 12 per cent basis which would indicate the imminence of serious trouble. The reason for these low figures is to be found in part in the apprehensions concerning the Denver and Rio Grande. The Missouri Pacific owns about 40 per cent of the Denver and Rio Grande stock and this company owns a majority of the stock of the Western Pacific. The Western Pacific has had to call upon the Denver and Rio Grande to make up a deficit in its earnings in order to pay the interest on its bonds. The Missouri Pacific has $25,000,000 of notes coming due next June. These are the notes which have sold at such low prices. These notes while secured in part by St. Louis and Iron Mountain bonds and notes, and by Texas and Pacific stock, are also secured by $9,800,000 preferred and $15,000,000 common stock of the Denver and Rio Grande. Any difficulties experienced by that company would have a serious effect upon the credit of the Missouri Pacific. It is not believed, however, in view of the splendid showing which the Missouri Pacific is making that it will have any difficulty in financing its maturing requirements.

The Frisco Receivership.

THE Frisco receivership did not occasion surprise. On May 27th, Thos. H. West, chairman of the board of directors of the St. Louis Trust Company, and B. L. Winchell, president of the company, were appointed receivers by Judge Walter H. Sanborn. The petition was made in the name of Mr. West and other directors. It was based on the admitted inability of the railroad to meet a loan of $2,250,000 maturing on June 1st. About the same time the Chicago and Eastern Illinois, the principal subsidiary of the St. Louis and San Francisco, was placed in the hands of Wm. L. Jackson, vice-president of the company, and Edwin W. Winters, of New York.

Much bitterness of feeling has been aroused abroad by this receivership. Speyer and Company, who have acted as the principal bankers for the company, have placed more than $30,000,000 of the general lien 5 per cent bonds in Paris. Only a month ago $3,000,000 of these bonds were disposed of to French investors. The bankers feel that an explanation is due them and this feeling is general. More protective committees have been announced since this receivership than in the case of any other railroad failure. It is believed that a thorough investigation of the affairs of the road will be necessary to re-establish the confidence of the investors in this property. Speyer and Company stated publicly that the railroad management had put the road into receivers' hands without consulting them, and they opposed the appointment of the receivers who were selected. It is impossible, at this time, to forecast the action which the receivers will take, other than that they have already begun drastic retrenchment in expenses and that the usual issues of receivers' certificates for current needs will be made.

The principal interest centres in the position of the general lien 5 per cent bonds of which $67,605,000 are in the hands of the public. These bonds are practically a first lien on 1,073 miles of road, and an inferior lien on about 4000 miles additional. They are also secured by liens on certain stocks and leasehold interests and junior liens on equipment and terminals. For the first nine months of the present fiscal year the Frisco earned a surplus over interest charges, including interest on general lien bonds outstanding on March 1st, 1913, or $2,267,534. On the basis of earnings the company is fully solvent. Its capital structure has, however, been badly planned and contains an excessive amount of debt.

Chicago and Eastern Illinois Receivership.

THE receivership for the Chicago and Eastern Illinois is a creditors' proceeding for the conservation of the property. It is not believed that this will result in a foreclosure. The company has a small floating debt and various equipment trust notes maturing in the near future. This indebtedness can be easily financed.

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The present intention of the large stockholders in the Chicago and Eastern Illinois is to separate that company from the Frisco. Neither company has profited by the alliance. The Chicago and Eastern Illinois has not furnished the ten per cent which the Frisco guaranteed on its stock and it is claimed that the smaller company has not benefited by the control. By the terms of the contract which gave the Frisco a controlling interest in the Chicago and Eastern Illinois, the original holders of the stock may recall it at any time. They have the option of returning the Frisco's notes and buying control back at par, or waiting until 1940 and receiving bonuses of $150 for each share of common, and $50 for each share of preferred which was originally transferred. The plan suggested by Mr. H. W. Lyford, counsel for the receivers, is to persuade the original holders of the stock trust certificates to return these to the St. Louis and San Francisco and take back the ownership of the property.

Effect Upon Foreign Investors.

AN unfortunate influence from the embarrassment of the Frisco is the injurious effect which the affair will exert abroad. American railroads must rely for a long time upon foreign capital to supplement domestic resources. The effect of the receivership in Paris is suggested in an interview cabled to the *Herald* by an officer of the Bourse, M. de Verneuil, in which he said: "The United States is a great country and its resources are immense and inexhaustible. I have not changed my opinion regarding the values of the country, but I have changed my view of the moral worth of some of its citizens.

"The methods of some American financiers have done a great harm to French investors, whose assistance they often have solicited and who have been only too ready to open their pockets to foreign enterprises.

"I am very much afraid that as a result of the ill advised conduct of these American financiers other American stocks, even those above suspicion, no longer will be accepted by the French public."

Review of General Situation.

THE collapse of one of the weak roads has directed attention to other companies concerning whose finances questions have been raised. No reason exists to anticipate trouble from earnings being sufficient to pay interest. The only difficulty that is likely to be experienced is from the maturity of principal. There are no other important companies, however, which are in the situation which confronted the St. Louis and San Francisco. The maturing obligations for the remainder of the year are well cared for. The Atlanta, Birmingham and Atlantic, and the Wabash receivers must take care of large issues of receivers' certificates this summer, but since these are practically prior liens on the property no trouble will be experienced in handling them. The New York, New Haven and Hartford has $10,000,000 of 5 per cent notes due December 1st. This company has, however, so wisely managed its credit that it can place underlying liens on some of its most valuable property to secure first mortgage bond issues if necessary. The $45,000,000 of Baltimore and Ohio 4½ per cent notes due on June 1st were taken care of by the sale of 4½ per cent bonds early in the year. Boston and Maine took up an issue of 4 per cent notes with 6 per cent notes. The Cincinnati, Hamilton and Dayton 4 per cent notes have been taken care of by the recent Baltimore and Ohio issue, mentioned elsewhere, and the Nashville, Chattanooga and St. Louis 6 per cent notes, provided for by a recent stock issue. Other maturities remaining are $4,000,000 Hocking Valley 4½ per cent notes due November 1st, and $2,880,000 Frisco divisional first mortgage 5's in addition to equipment obligations. There is nothing in this record which shows any ground for apprehension.

Railway Financing for May.

IN spite of the fact that railroad financing is still on a reduced scale, during May, 1913, according to the table compiled by the *Journal of Commerce*, railroads issued $80,611,000 of bonds, notes and stocks. This is a decrease of $29,000,000 from 1912 but still represents a total which is surprisingly large when financial conditions are considered. It is impossible for railroads to stop construction work already begun, such as the building of sidetracks and the laying of new rails. Equipment which has been ordered must be paid for when received. If bonds cannot be sold then money must be borrowed from the banking interests on short term notes.

Railway Business for April.

THE total operating revenues of the railways for April were $237,362,424, an increase over those of April of last year of $22,893,968 in the aggregate, or 9.7 per cent per mile of line. This was whittled down by an advance in operating expenses of 12.3 per cent per mile of line to an increase in net operating revenue of $1,834,073 in the aggregate, or 2.4 per cent per mile of line.

The amount of this net operating revenue was $58,337,434. Taxes for the month took $10,482,492, an increase per mile of line of 7.9 per cent; this and shrinkage in revenue from outside operations left operating income amounting to $47,516,273, an increase of $810,427 or less than one per cent per mile of line. This aggregate operating income for the 222,156 miles amounts to $214 per mile of line for the month, or $7.13 per mile of line per day.

It is the operating income to which the railroads must look for betterments, improvements, new construction, and for interest on bonds and dividends. Except for the fact that there was an anthracite coal strike in April of last year, this operating income for the railways as a whole would not have averaged an increase, and for the railways of the Eastern group would have been less this year than last, instead of increasing 14.6 per cent. It was lower per mile of line for these railroads in April, 1912, by 33 per cent than in April, 1911; and 3.8 per cent greater in April, 1911, than in April, 1910. For the railways of the Southern group this operating income per mile of line was 16.5 per cent less than in April, 1912; less in April, 1912, by 1.9 per cent than in April, 1911; and less in April, 1911, by 14.5 per cent than in April, 1910. For the railways of the Western group this operating income per mile of line was 3.2 per cent less than in April, 1912; greater in April, 1912, by 2.1 per cent than in April, 1011; less in April, 1911, by 12.3 per cent than in April, 1910.

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Operation

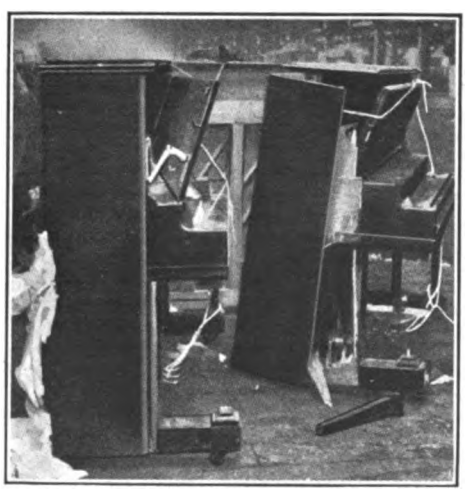
Recent Accidents.

IMPELLED by a peculiar wave of sentimentality, the railroads of the country are at the present time receiving censure—much of it undeserved—concerning train accidents. Psychologists have been unable to offer any scientific explanation for these peculiar outbursts of popular opinion which, founded as a rule upon some slight incident, quickly assume the greatest proportions, running frequently to heedless extremes.

The immediate cause of the wide-spread agitation against the railroads as regards accidents which has sprung up within the last few days, monopolizing an undue amount of newspaper space, was the wreck which occurred on the New Haven system at Stamford, Connecticut, on June 12th. The accident was the result of a collision between the first and second sections of the Springfield express in the railroad station at Stamford, Conn.

It is too early, in advance of the official investigation by the railroad and by the Interstate Commerce Commission and Connecticut Public Utilities Commission, to locate definitely the real responsibility for the collision. The facts, so far as known, are that the first section was standing in the station when the second section, disregarding the danger signals set against it, crashed into the first section, telescoping the Pullman car attached to the rear of the first section, killing six persons and injuring a number of others. The engineer's defense is that he had previously written in the work book of the Stamford roundhouse "Brakes no good—won't hold"; that he had sprained his back on the previous day while endeavoring to reverse his engine, and that when he saw the accident was imminent, he was unable, because of the injury and the great amount of strength required, to throw over the reverse lever, and hence could not prevent the accident.

On June 17th, the New Haven made a trial run with the same engine which figured in the wreck, after slight repairs had been made, to demonstrate to the representatives of the Interstate Commerce Commission and the Connecticut Public Utilities Commission, that the fault did not lie in the locomotive. According to the newspaper reports, however, the engineer selected to make the test failed to bring the locomotive to a standstill at the point selected in the Stamford Station, the train running about five car lengths beyond this point. Thus, while the accident was plainly due to the carelessness of the engineer in running past both his distant and home signals set against him—about which there is no dispute—public opinion has turned the case against the railroad on the ground that the accident was due to carelessness in making repairs.



EFFECT OF UNDESIRED QUICK ACTION IN A CAR LOT OF PLAYER PIANOS.

Everyone concedes that the New Haven has been peculiarly unfortunate in the last two years as regards wrecks. The accident at Stamford makes the thirteenth serious wreck since June 1st, 1911. The New Haven has been spending an enormous amount of money in endeavoring to prevent such catastrophes. The company has met, in so far as practicable, every requirement or suggestion of either the Interstate Commerce Commission or the several State Commissions with reference to the improvement of its signal system, the elimination of short cross-overs and such other matters as are directly or indirectly responsible for accidents.

The country should not lose sight of the fact that the New Haven is operating in a very densely populated territory, that a very high train mileage per mile of track results, and that the likelihood of accidents is thereby tremendously increased. It must also be borne in mind that the New Haven is in the forefront in investigating such questions as automatic train stops and other matters which it is hoped will bring about a permanent solution of the collision problem.

Commission's Accident Bulletin.

THE Interstate Commerce Commission, in its Accident Bulletin No. 46, covering the quarter ending December 31, 1912, reports that defective roadway and defective equipment cause 71.6 per cent of the derailments of steam railway trains. Of the derailments due to defective roadway, 23.8 per cent were caused by broken rails, and of the number caused by defective equipment, 26.5 per cent resulted from defective wheels.

There was an increase in the quarter, as compared with the corresponding quarter of 1911, of 527 in the number of train accidents. The number of collisions increased 433 and the number of derailments 215. There was an increase of 135 in the number of persons killed and 1,107 in the number injured over the corresponding quarter of 1911.

There is no doubt that the country is becoming increasingly sensitive concerning railway accidents and that this sensitiveness extends not only to the public at large but to scientific bodies from whom calm and impartial judgment may be expected. The American Society of Mechanical Engineers, at its meeting held in Baltimore, on May 24th, briefly discussed the accident prob-

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lem, and it was the almost unanimous consensus of opinion of those who spoke that the railroads should devise and speedily adopt some mechanical contrivance which would tend to prevent accidents.

Reflecting the popular interest in the matter, a bill was introduced in the House of Representatives at Washington on June 24th, by Representative Roberts, of Massachusetts, requiring all railroads engaged in interstate commerce to use fireproof steel cars and to equip their lines with automatic switches, signals and such other safety contrivances as may be approved by the Interstate Commerce Commission. The bill holds officers, directors and operating officials as well as the companies responsible for violation of these regulations, and provides fines from $500 to $10,000 and prison sentences from thirty days to one year as penalties for infractions. The companies are given four years in which to equip their lines with steel cars, at least twenty-five per cent of the equipment to be installed each year. Complete installation of safety devices is to be made within two years.

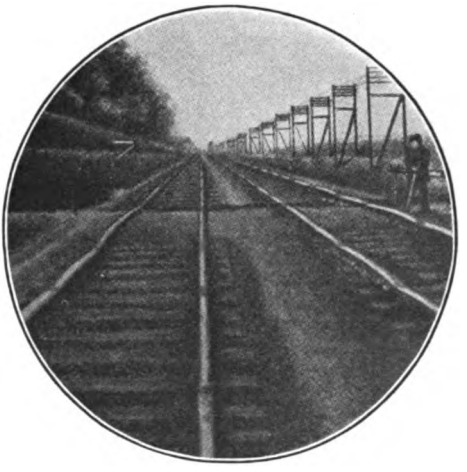
Record of the Pennsylvania.

STRONG evidence in support of the safety of American railway operation is furnished by the statistics compiled by the Pennsylvania Railroad for the year 1912, which were made public on June 16th. This system operated during that period 837,121 trains, which covered an aggregate distance of 40,000,000 miles, carrying, all told, 100,000,000 people or more than the entire population of the United States. Out of this striking total, only two trains suffered wrecks causing loss of life. During the five years 1908 to 1912 inclusive, sixteen passengers lost their lives in accidents to trains, while the system for that period carried over 500,000,000 passengers, or a number equaling one-third of the population of the entire world. Of the passengers injured in 1912, 321 were hurt getting on and off trains, 25 in falling while on railroad property in front of other than trains. There were 212 passengers injured as a result of train accidents. Of these, 155 were injured in the two wrecks in which four passengers were killed.

The Pennsylvania has made a careful analysis of all of the accidents, both trivial and serious, during the year 1912, and finds that probably twenty per cent of all accidents could have been prevented if employes had exercised special caution. The Pennsylvania Railroad Company has prepared a book called "Safety Hints and Suggestions for the Prevention of Personal Injury and Accidents," of which one hundred thousand copies are being distributed among officers and employes of the system. This book contains the results of a painstaking investigation of thousands of accidents and points out in a forceful manner the way in which the great majority of those which occurred could have been prevented. The safety work on the large railroad systems steadily continues, although during the past month no new innovations or developments of importance have occurred. This work has now reached maturity and is proving of increasing value with the passage of time.

Use of Field Glasses in Inspection of Track.

AN interesting development which has recently occurred in England is the use of field glasses in the inspection of maintenance-of-way work. Even the most experienced railway official has difficulty in inspecting the finer details of maintenance work from an inspection car on the rear of a train moving at ordinary speed. Such features as low joints and imperfect alignment are minimized both by the rapidity of motion and by the position of the observer. In order to overcome this difficulty, English officials have begun the use of field glasses for such work. It has been found that the use of the glasses brings out very clearly many track defects heretofore difficult of location. The accompanying cut shows how sunken joints, for example, are clearly shown with the use of the glasses.



SUNKEN RAIL JOINTS SEEN THROUGH FIELD GLASSES.

New Mail-Catching Devices.

NOTICE from the postal authorities in Washington has been received to the effect that improved devices for delivering and catching mail sacks must be installed. Two devices have been chosen by the government, one of which must be adopted, although there are four other patents pending, and it may be that one or more of these devices will be added to the list from which to choose. The step taken by the authorities in Washington does not displease the railroad officials, as they have often stated that they were desirous of having a standard device prescribed for them, and in that way eliminate the possibility of sudden changes at the will of the different officials who become convinced that another device is preferable to the one which they happen to be using at the time.

Use of Crude Oil as Engine Fuel.

IT is estimated that more than 32,000,000 barrels of crude oil were used by railroads of the United States for fuel in 1912. This was an increase of more than 4,000,000 barrels over 1911. During the last few years, crude oil has replaced coal for fuel on the locomotives

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upon many of the railroads in Texas, Oklahoma and Louisiana.

The total mileage of railroad now operated with fuel oil is about 28,000 miles. The adoption of oil for fuel by many of the roads has added greatly to the comfort of the traveling public, has lessened the labor of the firemen, and has greatly reduced the cost of operation. More than 1,200 oil burning locomotives are in use on the Southern Pacific and more than 800 on the Santa Fe.

Pennsylvania Railroad to Use Wireless.

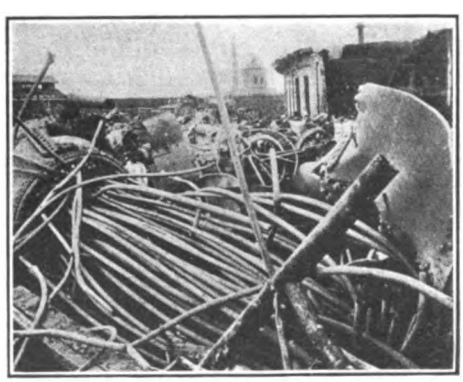
IT is currently reported by the newspapers that the Pennsylvania Railroad will soon establish a wireless telegraph system connecting Pittsburgh, Philadelphia, Altoona and Harrisburg, the division points on the main line. Plants will be established at Altoona and Philadelphia immediately. If successful, the system between these two points will be installed at all of the principal stations on the line.

One purpose of the wireless system will be to guard against "wire-down" and storm trouble during floods. With wireless, the company can communicate with its division points in any kind of weather. Work on towers and installation is expected to be started in Philadelphia and Altoona within the next few weeks.

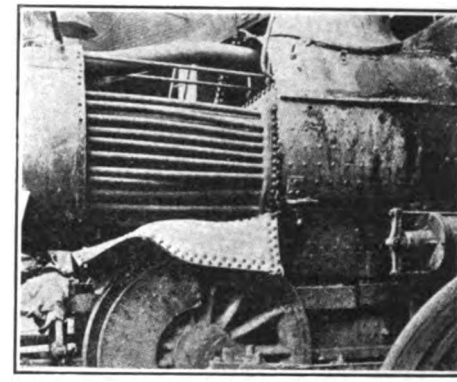
Boiler Inspection.

MR. GARLAND P. ROBINSON, of the Interstate Commerce Commission, gave an illustrated lecture on boiler inspection at a recent meeting of the Richmond Railroad Club. After reviewing the statistics of boiler accidents collected by the Commission, in which it was found that out of 74,234 locomotive boilers inspected, 3,377 locomotives had to be ordered out of use and 48,768 were in some degree defective. Mr. Robinson proceeded to analyze the most common causes of accidents. These he found, in the order of their importance, to be (1) defective squirt or sprinkler hose, (2) water glass accidents, (3) low water, and (4) carelessness in setting safety valves.

He stated that the aim of the Commission at the present time was to eliminate or reduce the frequency of these accidents through better inspection and by securing the co-operation of the railroads in educational work. He stated that practically all of the accidents due to defective squirt or sprinkler hose were preventable, and that a



THE TERRIBLE EFFECT OF EXCESSIVE STEAM PRESSURE.



IN THIS CASE THE SAFETY VALVE WAS WORKING AT THE TIME OF THE EXPLOSION; THE ACCIDENT WAS DUE TO AN INSUFFICIENT FACTOR OF SAFETY—CALCULATED TO BE 3.44.

number of companies were engaged in experiments with air-operated hose. As regards the accidents due to the breaking of water glasses, he stated that while the Commission allowed the use of wire net under certain conditions, yet it was not recommended because it did not always prove effective in cases of accident. The only remedy for low water explosions is careful inspection and repairs. The operation of locomotives with defective parts causes the engineer to be misled as to the amount of water in the boiler and brings disaster. Carelessness in setting safety valves is something which cannot be guarded against except by inspection.

One of the most interesting features of the lecture was the illustrations showing the results of typical boiler explosions. We reproduce herewith some of these illustrations which bring out in an effective way both the weak points of the locomotive and the terrific effect exerted by an explosion.

Examples of Absurd Legislation.

THE past winter, in which the legislatures of many States have been in session, has brought out an unusually large crop of absurd bills to regulate railways. Comparatively few of these bills ever emerge from the committee in which they are buried. It is amusing and interesting, however, to notice the extent to which these vagaries go. In a number of legislatures champions of the "no-seat, no-fare" theory forged to the front, while in others various means for better sanitary rules on trains and in railway depots were discussed. In Michigan a member of the legislature introduced a bill intended to prohibit spitting on radiators in railway stations. One member of the legislature of North Carolina urged that all railroads operating in that State be required to place cuspidors before each seat. An effort was made by a member of the Wisconsin legislature to obtain the passage of a law requiring railways to equip baggage and express cars with cots for sick and injured persons.

Eastern Illinois to Promptly Adjust Freight Claims.

A CIRCULAR has been issued to shippers and connecting lines, over the signature of the General Freight Agent of the

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Eastern Illinois Railroad Company, stating that "the question of prompt payment of freight claims presented by our patrons and likewise of the Chicago and Eastern Illinois Railroad's proportion of freight claims settled by connecting lines having arisen, on authority of receivers Jackson and Winter, the receivers shall continue uninterruptedly to adjust promptly and in full all freight claim obligations (both local and interline) both prior and subsequent to receivership. W. H. Emerson, acting freight claim agent, with office at 7708 Wallace Street, Chicago, is in charge of loss and damage freight claim matters. W. A. Ragel, freight accountant, with office at 7720 Wallace Street, Chicago, is in charge of overcharge claim matters."

Contract Form for the Purchase of Coal.

THE fifth annual convention of the International Railway Fuel Association held in Chicago, May 21st to 24th, was given over in part to the discussion of the proper form of contract for the purchase of coal by railroad companies. Mr. Francis S. Peabody, president of the Peabody Coal Company of Chicago, stated that the maximum and minimum clause of the existing contracts was causing great inconvenience to the mine operator, as the roads were inclined to demand the maximum tonnage at the time when it was most inconvenient for the operators to supply it. He stated that the railroads should store four months' supply during the storage period both in order that they might take advantage of the decrease in traffic and the lower cost for transportation, and because it would keep the mines busy during the dull season. He recommended a storage yard with trestles and steam shovels for loading, and stated that the cost of storage would amount to only 15 cents per ton,—2 cents for unloading, 3 cents for loading, and 10 cents for depreciation.

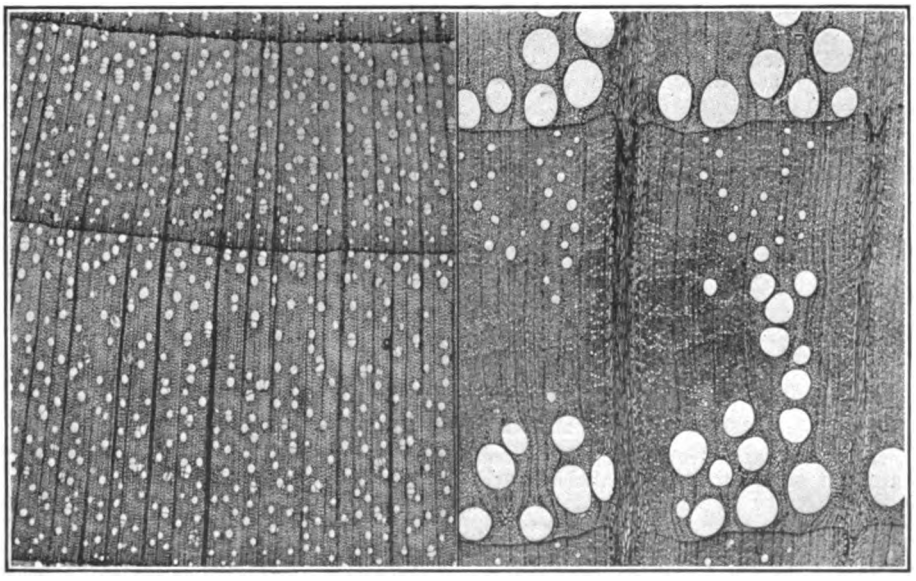
Mr. J. G. Crawford, of the Burlington system, as chairman of the committee in charge, presented a proposed form of contract for the purchase of railway fuel coal. The discussion concerning the proposed contract brought out a difference of opinion as to whether it was advisable to mention in the contract the number of cars to be supplied at the mine by the operator. Another question which was discussed was what provision, if any, should be inserted in the contract concerning coal which was not up to the standard but which might, nevertheless, be used by the railroad with a reasonable degree of satisfaction.

Other suggestions which were made were that the contract should include specifications as to the fusing of the ash, the heat value, the percentage of ash in the coal, and a standard method of obtaining samples.

Mechanical

ADDITIONAL CROSS-TIE PRESERVATIVE EXPERIMENTS.

FOLLOWING up the experimental work which has recently been completed and published concerning the advantages and the effect of preservative treatment of cross ties, the United States Forest Service has published a bulletin outlining an extensive series of experiments relating to red oak and hard maple cross ties. These experiments are to be conducted in conjunction with the University of Wisconsin and the Chicago, Milwaukee and St. Paul Railroad Company. The ties used in the experiments are ordinary stock of the St. Paul, 100 of each of the two species being treated by each of six processes. The 600 red oak and 600 hard maple ties, together



MAGNIFIED CROSS SECTION OF HARD MAPLE. MAGNIFIED CROSS SECTION OF RED OAK.

The smaller number of pores made the process of absorption slower for red oak than for hard maple ties.

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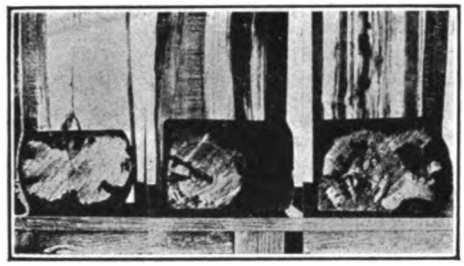
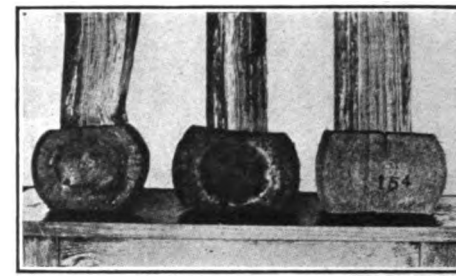


SECTIONS OF HARD MAPLE TIES TREATED BY THE FULL CELL CREOSOTE PROCESS.



SCTIONS OF RED OAK TIES TREATED BY THE FULL CELL CREOSOTE PROCESS.

The above cuts show the greater absorption of the preservative by the hard maple tie. This condition prevailed with other processes except the Rueping process.

with 100 untreated ties of each species have been laid side by side in a typical stretch of track. The Bulletin (No. 126) describes in detail the conditions under which the ties were laid and the history of each class of tie at the time it was laid. The track selected was part of a single track road carrying a fairly heavy traffic in both directions. The ties were laid on gravel ballast, well drained. Nearly all of the treated ties were placed on a fill but a few included in the test were laid in a cut. Screw spikes with flat tie plates were used on one half of the ties, the balance being unprotected by tie plates and fastened with ordinary cut spikes.

It is the intention of the Forest Service to carefully watch these ties and to ascertain what service they will give. A large portion of the Bulletin consists of a description of the various processes used in the treatment of these ties, including drawings and photographs of the apparatus used.

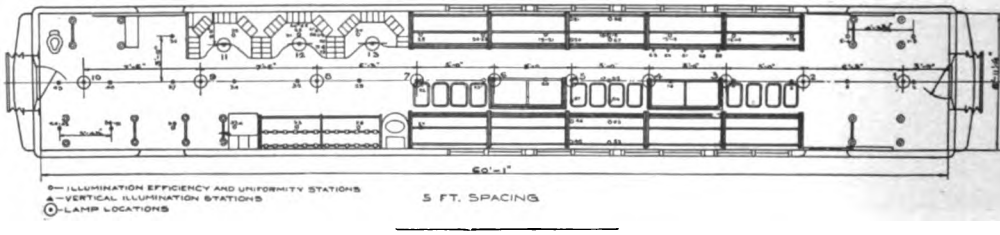
LIGHTING SPECIFICATIONS FOR FULL POSTAL CARS

THE Special Committee on Relations of Railway Operation to Legislation submitted a report (Bulletin No. 44) on January 14th last, containing general lighting specifications for steel full postal cars, which were presented, in summary, in the RAILWAY WORLD for February.

The committee has issued under date of January 9th, full specifications concerning the planning and construction of full postal cars, which are in reality a guide to the car builder in carrying out the general plan formulated by the committee and heretofore reported. The specifications cover every detail of the car's construction, giving detailed dimensions, plans and specifications concerning its building and fixtures.

The committee recommends that except where a very high standard of cleaning maintenance is obtained and where the deterioration of illumination under service conditions is known, that higher initial illumination values be used than are called for by the specifications. From 45 to 55 per cent deterioration before reaching the specification minimum service illumination values for porcelain enamel reflectors, and from 55 to 65 per cent deterioration for aluminized metal reflectors, should be allowed. To obtain satisfactory results, two designs of reflectors are desirable—one an extensive or distributing type of reflector for the body of the car, and the other a concentrating type for the letter cases. The tests showed that the aluminized metal reflector is best adapted for postal car illumination.

LOCATION OF S...ONS AND LAMPS
B & O. R.R. POSTAL CAR ILLUMINATION TESTS



TESTS OF VARIOUS CLASSES OF PAINT ON RAILROAD BRIDGE

THE results of a six-year test of various classes of paint for steel on the Pennsylvania bridge at Havre-de-Grace, Md., made by the American Society for Testing Materials, has recently been made public. In all, nineteen different paints were applied to various parts of the bridge structure and to special plates attached thereto at the definite spreading rates of 600, 900 and 1,200 square feet to the gallon. For the test steel plates two by three feet that had been pickled in acid neutralized in soda solution and washed and packed in lime until the moment of painting were used. Three plates for each of the nineteen paints were given three coats at each spreading rate. The work was accurately done in a shop erected for the purpose.

The paint was applied early in 1906. Frequent examinations of the work were made by the standing committee of the American Society for Testing Materials, records being made at the time of

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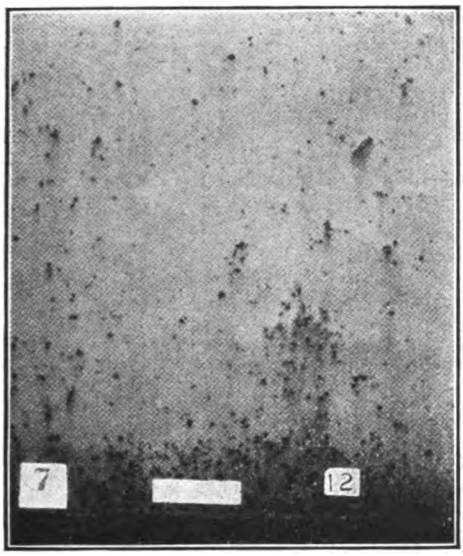
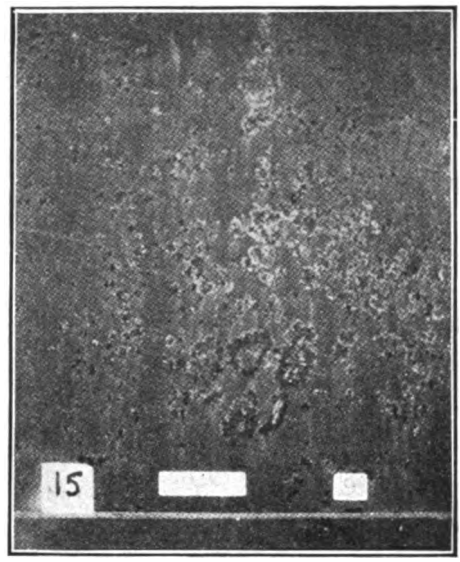


A GRAPHITE PAINT.
Spreading rate 1200 sq. ft. to the gallon. Photograph of test plate taken October, 1912.



AN ASPHALTUM PAINT.
Spreading rate 900 sq. ft. to the gallon. Photograph of test plate taken October, 1912.

each examination both as regards the progress of destruction and the relative wearing qualities of the paint. Mr. George S. Rice, of New York, in his report concerning the results of the test, states that with very few exceptions the paints applied to the bridge structure itself are now in better condition than those applied to the steel plates that had been chemically treated. This he attributes to the heavy spreading rate employed on the bridge naturally making a thicker coat. Prof. Lewis H. McFadden, in commenting upon his examination of the surface covered with the various paints, declares that in his judgment practically all of them have now served their ordinary commercial life, although it is probable that a few of the paints will continue to afford protection for from two to four years longer.

The paint which, in the judgment of the three members of the committee (the third member being Mr. John R. Demsey) had most completely protected the surface to which it was applied was known in the report as "No. 6," and had been submitted for the test by Lowe Brothers Company. In commenting upon the formula of this paint, the committee states that "It consisted of a red lead preparation for the priming coat, a carbon paint for the top, and a mixture of the two for the intermediate coat. This philosophy, which consists in producing a solid, sufficiently elastic foundation with rust inhibitive properties by a priming coat of red lead, followed by a transition coat of intermediate in elastic quality between the primer and top coat, whose office is essentially protective of the undercoats, is amply justified in the behavior of paint 6.

"It would be unfair not to recognize the fact that several paints are giving notably good service on the steel plates, and better service on the bridge itself. But our conclusion, deliberately arrived at repeatedly and critically going over the entire series of tests and inspecting the various members of the bridge, is that paint 6, supplied by The Lowe Brothers Company, measures distinctly higher than any other paint of the nineteen embraced in the test, in efficient protection for six

FIRST AND SECOND COATS "RED LEAD LUTE," TOP COAT "METALCOTE."
Spreading rate 900 sq. ft. to the gallon. Photograph of test plate taken October, 1912.

years of service, in general appearance of surface and in promise of continued service."

Mammoth Coal Unloading Dock of Canadian Pacific.

A MAMMOTH coal unloading dock has recently been installed by the Canadian Pacific at St. William, Ont. The unloading

GENERAL VIEW OF CANADIAN PACIFIC COAL UNLOADING DOCK AT ST. WILLIAM, ONT.

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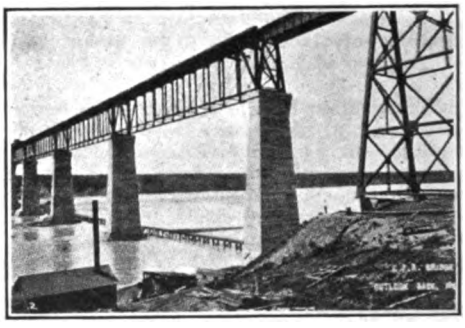
equipment while generally similar to that employed in most plants of this character, is unique in that it employs the same principles for the handling of coal which have been worked out successfully heretofore in connection with the handling of ore. The advantage of using the machinery designed for the handling of ore is that it will not break up the coal as much as the ordinary coal-handling machinery, the larger pocket in the aggregate being more economical. The pocket used in connection with this plant has a capacity of nine tons and a total travel of 485 feet 8 inches, while the bridge which carries it can be moved 2,890 feet along the runways. We reproduce herewith a cut showing a general view of the dock.

NOTABLE CANADIAN BRIDGES

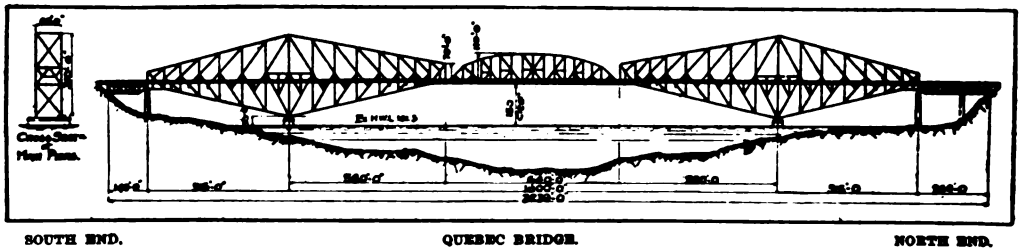
AT the present time there are in course of construction two notable bridges in Canada. The most famous of these is the Quebec bridge over the St. Lawrence, taking the place of the ill-fated structure which collapsed some years ago and became a matter of universal interest not only to engineers who were seeking for the cause therefor, but to the public at large as one of the catastrophes of the time. The new structure now in process of erection, and which it is confidently believed can be successfully completed, has a total length of over 3,200 feet, or almost three quarters of a mile. The span of the bridge, as between the two piers located in the river on either side of the main channel is over 1,800 feet, or more than one third of a mile. The height in mid channel is 150 feet in the clear. Approximately 60,000 tons of steel will be used in the construction of the bridge. The erection of the bridge requires the construction of a large and expensive fabricating plant at the river side, requiring a main building 660 feet long and of an average width of 160 feet. A stock yard of extensive capacity is equipped with large crane runways together with machinery of all classes such as would be useful in such work. In all, over 109 machines or mechanical appliances have been installed. The work of erection is being done by the St. Lawrence Bridge Company, Limited.

Another notable bridge which will revolutionize transportation conditions in Canada is that recently completed by the Canadian Pacific Railway at Outlook, Saskatchewan. The bridge crosses the South Saskatchewan River and has a total length of 3,004 feet, with an elevation above normal water level in the river of 147.25 feet. The bridge is carried on heavy concrete abutments, the central pier being over 125 feet in height above water level. The central spans of the bridge—eight in number—are 240 feet each in length. The accompanying illustrations show the size and general characteristics of both structures.



From "Canadian Railway and Marine World."

CONSTRUCTION WORK ON THE NEW C. P. R. BRIDGE AT OUTLOOK, SASK.



SOUTH END. QUEBEC BRIDGE. NORTH END.

From "Canadian Machinery."

NEW TYPE OF VARIABLE LOAD BRAKE

AN improved type of Bettendorf variable load brake has been recently placed upon the market. This device was shown at the convention of the Master Car Builders a year ago and attracted considerable interest. Various objections were found in practice, however, to the device as then constructed. The new type aims to eliminate these objections and increase the wearing life of the brake.

The principle of the device is that of applying the cylinder and lever portions for the desired load-weight braking power and of utilizing a series of parts as a fulcrum for one of the levers. This fulcrum will not move unless the brake-cylinder force becomes equal to some predetermined percentage of the downward force due to the weight of the car body and the load thereon. When the force exceeds this predetermined amount, the car body will be lifted, thereby preventing any additional pressure upon the brake shoe and, theoretically, at least, avoiding the locking of the wheels, with the attendant injury thereto. In brief, the plan is to proportion the force of the braking pressure to the weight of the car and its load, which both in theory and in practice is the

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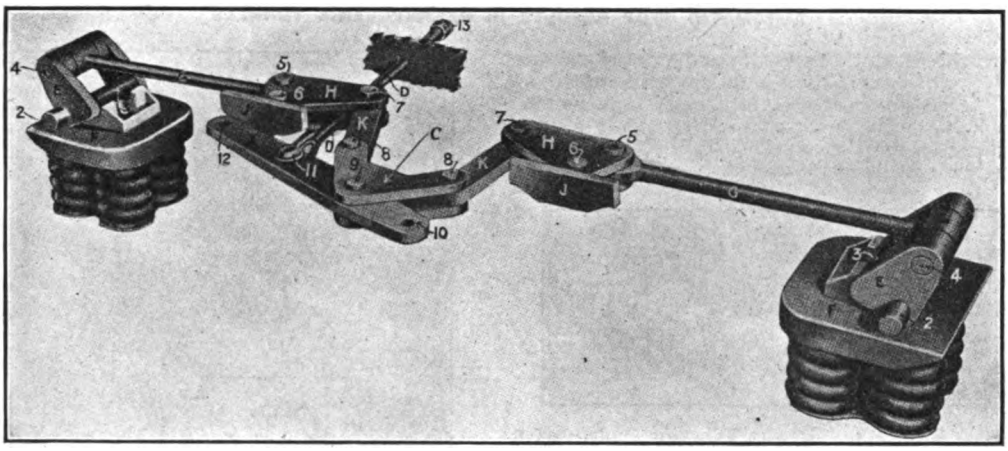


ASSEMBLY OF PARTS COMPRISING BETTENDORF VARIABLE LOAD BRAKES.

principle which should control correct braking. The advantages claimed for the equipment are that it permits of an increased load-weight brake power when the car is loaded, while when it is empty the brake power is proportionately decreased. If only one end of the car is loaded (as, for example, in hauling long steel beams extending over two or three cars), it is possible to have increased brake power for one truck without correspondingly increasing the power on the truck bearing little or no load. In addition, it is claimed that there is less likelihood, with the use of this brake, of pulling trains in two from emergency applications.

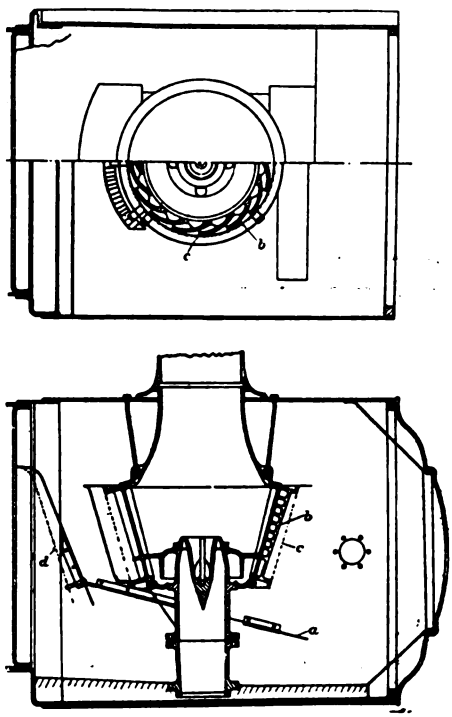
SUB-BITUMINOUS AND LIGNITIC COAL AS LOCOMOTIVE FUEL.

MR. SAMUEL B. FLAGG read a very interesting paper at the meeting of the International Railway Fuel Association held in Chicago on May 21st, on "Sub-Bituminous and Lignitic Coal as Locomotive Fuel." After reviewing the chemical differences between this type of coal and that of higher grade, and contrasting its theoretical heat-producing power with more commonly used fuel, Mr. Flagg proceeded to discuss some of the operating problems which arise from its use.

The lower heat value of the fuel requires a larger firebox in order to develop the required horsepower, and also necessitates additional grate area, placed by some authorities as high as 50 per cent. The tendency of the coal to cause additional resistance of the fuel bed to the flow of air necessitates high draughts, requiring additional exhaust pressure. This has a tendency to reduce the efficiency of the locomotive from 5 to 10 per cent. In addition, one of the greatest problems connected with the use of this fuel is the prevention of spark troubles arising in part from the high draughts and in part from the absence of a clinker tendency on the part of the fuel.

Various devices have been tried to overcome the spark problem. Mesh screens arranged in different ways have been tried, but almost without exception they have been unsatisfactory, both becoming clogged and readily burning out. The American Locomotive Company has worked out an arrangement to reduce the size of sparks and cinders and to delay their delivery from the stack till they cool sufficiently to prevent their being dangerous. The general nature of this device is shown in the accompanying illustration. Through the use of baffle and deflector plates and a four-inch mesh net, the size of the sparks is so reduced as to give no trouble in operation.

Mr. Flagg states that a number of these locomotives have been in service on Western lines for as much as four years, and that in this time no fires have been traced to locomotive sparking.



FRONT END ARRANGEMENT FOR LIGNITE BURNING LOCOMOTIVES.

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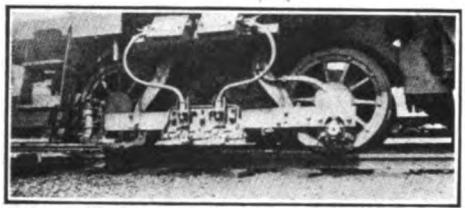
AUTOMATIO STOP RESULTS IN PENNSYLVANIA TUNNELS

ELECTRICAL engineers and railway operating officials have been much interested in the results which time would demonstrate would be secured with the electric trip device adopted by the Pennsylvania Railroad in connection with its New York tunnels. This corporation experimented, before the tunnels were placed in operation, with the type of trip used in the New York subway and in connection with the tunnels under the Hudson and East Rivers. It was found, however, that these trips, while satisfactory in the work in which they had heretofore been used, could not stand the hard blows resulting from the contact of the train, running at 60 miles per hour, with the trip.



THIRD RAIL SHOE BEAM, ELECTRIC LOCOMOTIVE PENNSYLVANIA RAILROAD.

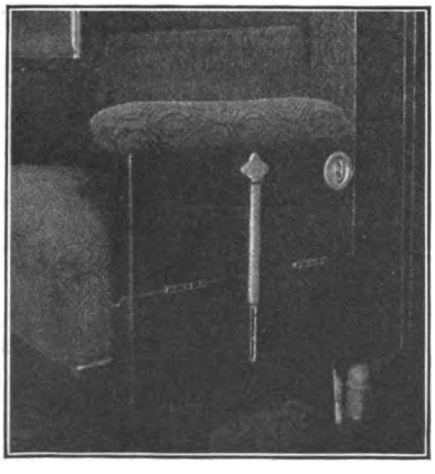
Fig. 1 shows the third rail shoe-beam of the electric locomotive to which is attached the air-valve, which is mounted at the extreme right.

Fig. 2 shows the trip at danger position. A casting on the air valve engages the middle tooth of the trip, rotating it so that the outside tooth will pass between two castings on the air valve, opening the valve and stopping the train. Springs are so placed on either side of the trip that it will be simply pressed down without damage after the valve has been opened and as the engine passes by. This automatic stopping device has thus far given satisfaction in use and it is believed that the experience is sufficient to indicate that it is satisfactory for the purpose for which it was designed.

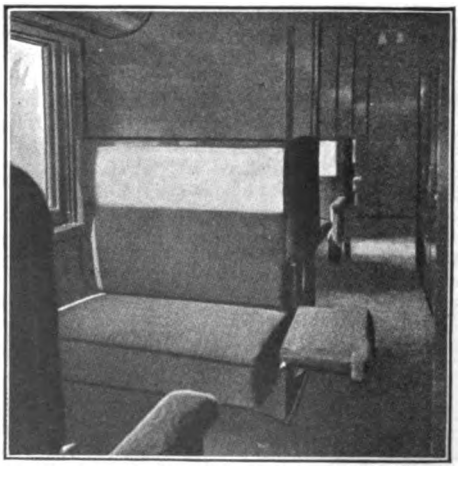
TRIP AT DANGER POSITION IN PENNSYLVANIA RAILROAD'S HUDSON RIVER TUNNEL.

CONVERTIBLE SEAT FOR COMPARTMENT CARS

THE Pullman Company has recently installed on the Twentieth Century Limited a convertible seat to be used in compartment cars where there is a separate passageway through the car outside of the compartments, into which the berths may be extended. This device gives a wider sleeping car berth than was heretofore possible, greatly increasing the comfort of the passenger and at the same time not decreasing the aisle space during the daytime. The seat ends are hinged so that they can be swung down and supported by an angle brace and form a horizontal extension of the seat. When the two seats are pulled out, as is ordinarily done in making up a lower berth, a filler is placed between the two ends after they have been lowered, thus forming a full sized bed. The nature of the seat end is clearly shown in the accompanying illustrations.



SEAT END LOCKED IN POSITION FOR DAY TRAVEL.



SEAT END IN POSITION FOR EXTENDING BERTH.

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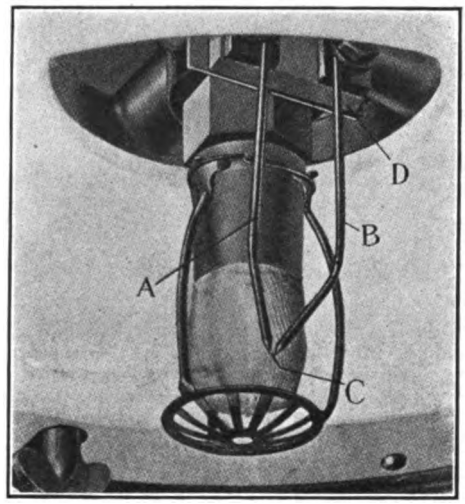
AUTOMATIC GAS LAMP LIGHTER FOR PASSENGER CARS

ONE of the most serious objections to the use of gas lamps in passenger cars has been overcome by a recent device put on the market by the Safety Car Heating and Lighting Company. The use of this device in connection with Pintsch mantle lamps makes possible the lighting of the lamp without the use of the familiar wax taper. The device consists of an electric ignition system controlled by a series of push buttons located at some convenient point in the car. After turning on the gas, the operator pushes the button controlling the lamp it is desired to light, thereby causing a jump spark which will ignite the mixture. It is possible with this type of lamp to light any one or all of the lamps at pleasure without in any way interfering with or annoying the passengers, just as, in fact, is the case with the latest type of electric lamp.

The source of the electric current supply for the ignition system is a dry battery operating in conjunction with a master vibrator and with a spark coil at each lamp to raise the tension of the current sufficiently to make it jump the spark gap. This arrangement obviates the necessity of running high tension wires on the roof of the cars. Two batteries of four cells each are sufficient to operate the system.

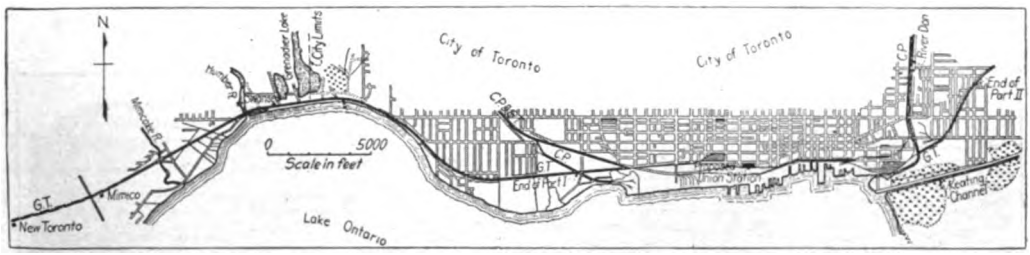


PINTSCH MANTLE WITH SPARK POINTS FOR ELECTRIC IGNITION.

GRAND TRUNK ELIMINATING TORONTO GRADE CROSSINGS

THE Grand Trunk system is engaged in extensive work to eliminate grade crossings in the city of Toronto. The lines entering the city were divided into three sections, one of which is now practically completed. Plans have been approved by the Railway Commission for the elevation of the tracks through the second section—between the Canadian Pacific crossing between Strachan avenue and the point just east of the River Don on Logan avenue—on which all through tracks and overhead tracks are to be elevated, with overhead crossings of all streets. The plan contemplates the construction of a Union station of the through type, with the tracks, equipped with a Bush train shed. The passenger platforms are to be 18 feet wide, while the baggage and express platforms, which are provided between each pair of tracks, are to be 12 feet wide.

The elevated line is to be four-track, the two outside tracks to be used for freight traffic and the inner tracks for passenger service. The work has cost up to the present time about $2,000,000, of which the city has paid one third of the cost of a two-track construction.



Map of Portion of the City of Toronto Showing Grand Trunk Lines on Which Grade Crossings Are Being Eliminated.

From the "Railway Age Gazette."

THE AUTOMATIC TRAIN STOP PROBLEM

MR. A. H. RUDD, Signal Engineer of the Pennsylvania Railroad, in an article contributed to "The Signal Engineer," discusses in an entertaining and instructive way the nature and extent of: "The Automatic Train Stop Problem." Mr. Rudd analyzed the accident figures of the Interstate Commerce Commission, pointing out that in 4½ years only 46 accidents resulted from a disregard of semaphore signals or about 8.4 per cent of the total number of accidents. According to Mr. P. J. Simmen, of the Commission's staff, 64.8 per cent were preventable by a complete signal system. Accepting this figure, Mr. Rudd concludes that 56.4 per cent would have been avoided by the installation of fixed signals which are needed under any conditions and which in no way con-

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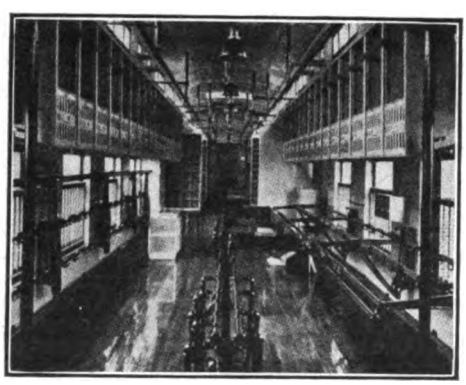
cern the automatic train stop problem. He pointed out that it was necessary to begin to brake high speed trains 4,000 feet away from the point where the stop must be made and that this has introduced a serious problem, for it would be impossible to locate an automatic stop at the distant signal without interfering with the ordinary handling of the train by the engineer. If the brakes were not to be suddenly set at this point, the automatic stop must be located at the gome signal, and the whole signal system must be so arranged that the train be given 4,000 feet from this point to come to a stand. The operating difficulties which this introduces are of the most serious character.

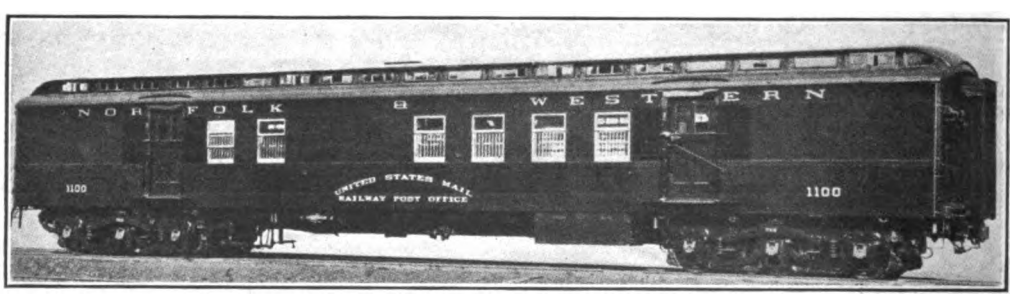
Mr. Rudd stated that stops using electric contact devices are not reliable, even though they seem to work satisfactorily in demonstrative tests. Moreover, the successful stop must be one which works in the worst winter weather and, in fact, under all weather conditions. An automatic stop located at the proper point for fast trains would require slow passenger trains to stop at an unnecessary distance from the danger point and would be even more disadvantageous in connection with freight work. He states that "if any safeguard other than the expansion of the fixed signal system is decided to be necessary, and the money can be obtained, an automatic stop, per se, should not be considered, but attempts should be made to develop a continuously controlled speed controller without contact devices, if possible; so arranged as to leave the control of the train in the hands of the engineman until and unless he exceeds a safe speed." Mr. Rudd, in diagrams accompanying his article, demonstrates that while with a signal system designed for high speed passenger operation a distance or space between trains of about 9,730 feet will be a sufficient minimum, yet with automatic stops this distance would be increased to 13,730 feet. Running under caution signals under twenty miles an hour, the space, under the present system, is 4,705 feet, while with automatic stops it would be 8,705 feet.

NEW STEEL PASSENGER EQUIPMENT FOR NORFOLK AND WESTERN



INTERIOR OF 70 FT. STEEL POSTAL CAR OF THE NORFOLK AND WESTERN RAILWAY.

WE produce herewith a cut showing the new steel express cars recently delivered to the Norfolk and Western Railway. These cars are seventy feet in length and weigh complete 122,500 lbs. The roof is of the clear story type, being supported by twenty pressed steel upper deck and 82 pressed steel lower deck car lines. Practically the entire car is composed of steel, except the floors, and window-sash, which are wood, and the headlining, which is constructed of fire-resisting agasote. The insulation, lighting system, arrangement of lights, mail fixtures, etc., are all in accordance with the railway mail service requirements.



EXTERIOR OF 70 FT. STEEL POSTAL CAR OF THE NORFOLK AND WESTERN RAILWAY.

SEVENTY-TON HOPPER CARS FOR THE BIRMINGHAM-SOUTHERN

THE BIRMINGHAM SOUTHERN has recently received eighty hopper cars of 70 tons capacity, built by the Pressed Steel Car Company of Pittsburgh. It will be seen from the illustration that the cars are fitted with coke racks extending entirely around the sides and end. The weight of the car is 58,600 lbs., 38,700 being in the body and 19,900 lbs. in the

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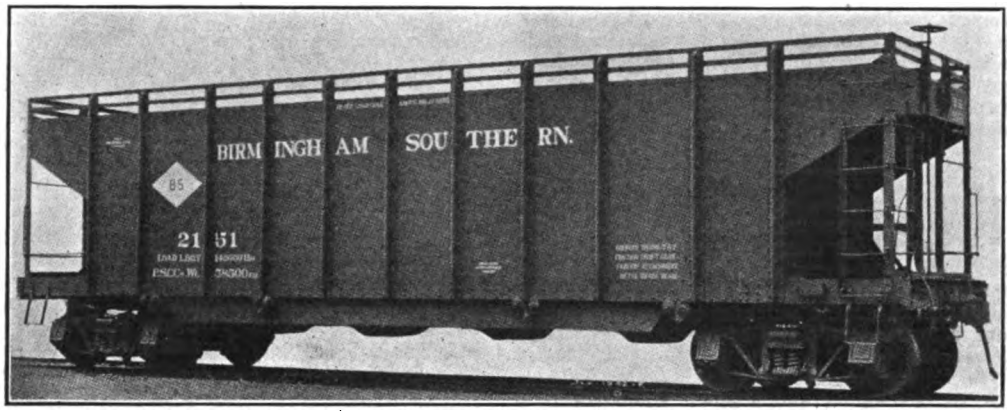

70 TON CAPACITY HOPPER CAR FOR THE BIRMINGHAM SOUTHERN RAILROAD.

trucks. The ratio of paying load to total weight of loaded car is 72½ per cent. The cars are equipped with sixteen drop doors, operated by the "Lind" door gear, which is self-locking, and when the doors are closed the accidental discharge of the contents is impossible.

THE ATLANTIC CITY CONVENTIONS

C. E. FULLER. President, M. C. B. Association.

J. S. LENTZ. Treasurer, M. C. B. Association.

J. W. TAYLOR. Secretary M. M. & M. C. B. Associations.

ANGUS SINCLAIR. Treasurer, M. M. Association.

D. F. CRAWFORD. President, M. M. Association.

The newly elected officers of the Master Car Builders' and Master Mechanics' Associations.

The Convention of the Master Mechanics' Association.

THE American Railway Master Mechanics' Association held its 46th Annual Convention at Atlantic City on June 11th-13th. The convention, in view of the excellence of the reports considered and the discussion thereof, is one of the most important which has been held by this remarkable organization.

President Crawford, in his opening address, touched upon many of the matters which would be considered. He emphasized the growing importance of such organizations as this in advancing the development of transportation and educating the public to a proper understanding of railway problems, and in furnishing valuable information for bankers and others indirectly concerned with railway companies.

He quoted with approval the statement which had been made that the members of the Maintenance of Way Association, the Master Mechanics and the Master Car Builders' Associations are in direct control of sixty per cent of the operating expenses of the railroads, and that is was possible, through these organizations, by increasing the degree of standardization of equipment, to bring about greater economies in original cost of construction and in the cost of maintenance. He also suggested that these organizations should make a place in their work for the questions of labor which have become such an important part of the cost of these branches of the service.

He further expressed the opinion that perhaps too much attention had in the past been given to purely technical questions—concerning, for example, such matters as locomotive construction—without giving sufficient consideration to the locomotive as an instrument of transportation. He stated that there should be a closer study of the adaptability of the machine to specific work, obtaining the maximum output with the minimum expense, and other questions which are equally important. He commended the interest which the universities and scientific bodies were taking in careful studies and tests of locomotives and other railway equipment, and ex-

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pressed the hope that this good work would go on. He also expressed keen appreciation of the importance of the studies concerning fuel economy, smoke prevention, train resistance and other similar investigations which have been undertaken.

Revision of Standards.

THE Committee on Revision of Standards presented a number of detailed recommendations concerning the revision of the specifications covering screw threads, gauges for cast-iron wheels, axles for locomotive tenders, allowance of engine mileage, and general questions concerning the use of air-brake and train air signals.

The Committee recommended that for the purpose of developing and shaping standards to a suitable form for universal adoption by the members, the Association should have and use "Recommended Practice," and that no standard should be adopted until it had been a "recommended practice" for at least one year, and that a standard should require such a substantial approval of the full active membership and the full railroad representative membership on the basis of one additional vote for 100 locomotives represented as will insure its being generally used. The Committee further recommended that whenever it is deemed advisable to alter any present, or prepare new specifications for material in which other recognized societies are interested, that the committee in charge of the work should be instructed to request the cooperation of those societies in preparing these specifications.

Mechanical Stokers.

THE Standing Committee on Mechanical Stokers submitted a valuable report reviewing the developments in this important field in the past year and the present status of this device in railway operation. After reviewing briefly the various types of stokers which are now used by the several railroads, the committee gives the results of its investigations as to the cost of stoker and brick arch repairs per 1,000 miles, which it finds averages $5.34. The committee was unable to find accurate data showing relative fuel consumption in hand firing and with the use of the stoker. The St. Louis & San Francisco Railroad's reports indicate higher economy with hand-firing locomotives, but the Committee is of the opinion that the tests were not such as to warrant any definite conclusion, as the various companies are sharply at variance concerning the matter. The mechanical stoker is apparently most effective with the smaller size of fuel—in fact, with some types, slack or crushed coal is necessary. With improved combustion, coals of a lower heat value can be utilized, adding still further to the economy of the stoker. It was also observed that when starting out steam can be gotten up more quickly with the stoker than with hand-firing.

The report presents the conclusions of the various railroad systems using this device, concerning the amount of tonnage which can be handled by mechanical versus hand-firing. After reviewing the reports, the committee concludes that this question resolves itself into one of physical characteristics, size of engines, character of fuel, and the skill of the firemen.

The ability to keep the fire door closed is a great advantage in favor of the stoker, lengthening the life of the fire box, flue sheets, seams and tubes. The stoker also has an advantage at terminals or ash pits because the thinner fire can be knocked out or cleaned in much less time. Against these advantages are the increased cost of maintenance of the stoker by reason of the increased amount of machinery and working parts.

In the discussion which followed the presentation of this report, Mr. W. C. Henry, of the Pennsylvania, stated that tests made by his system had shown increased tractive power due to the additional amount of coal delivered at the fire-box by the stoker over that which the fireman could handle. Mr. M. D. Franey, of the Lake Shore, stated that his experience convinced him that the stoker could do a little more work than the individual fireman and could give as nearly 100 per cent service as any other piece of mechanism attached to the locomotive. Mr. M. A. Kinney, of the Hocking Valley, stated that his company had been successful with the stokers in every case. Mr. T. M. Cooke, of the Pennsylvania, stated that engineers and firemen were generally skeptical towards the stoker when it was first introduced, but when the men became better acquainted with the device, this coolness disappeared.

Specifications for Cast Steel Locomotive Frames.

THE committee having charge of this subject presented the following recommendations for standard specifications for cast steel frames:

1. Castings must be true to pattern and free from flaws, shrinkage cracks, excessive scale or porosity. When patterns are furnished by a railroad company the manufacturer must make sure that the allowances for shrinkage in the patterns agrees with his own practice, and castings will be rejected, even when made from railroad company's patterns, which do not conform closely to required dimensions. Frames must be made perfectly straight and in true alignment, both vertically and horizontally. Frames will not be accepted which weigh less than 97 per cent of the weight specified, and material in excess of six per cent above the specified weight will not be paid for. The specified weight must allow a proper amount for finish, as may be agreed on.

2. All castings must be thoroughly and properly annealed, and test pieces must be annealed with the castings before they are detached.

3. Test pieces shall be one inch square, and, when possible, ten inches long, and must be left attached to each frame. At least two test pieces, one near each end of the frame, shall be provided. The test pieces shall be partly sawed off from the body of the casting so that they can be easily broken off, but shall not be entirely detached by the manufacturers. Both the main casting and test pieces shall be stamped with heat numbers. The finished test pieces for tensile strength test shall be ½-inch in diameter and two inches between shoulder fillets.

4. The material desired has a tensile strength of at least 70,000 pounds per square inch; elongation, twenty per cent in two inches and an elastic limit of 50 per cent of the tensile strength.

5. Cast-steel frames will be rejected which show less than the following requirements:

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Tensile strength, minimum ...65,000 lbs. per sq. in.
Elastic limit, minimum .....30,000 lbs. per sq. in.

Elongation in two inches shall not be less than a percentage represented by 1,200,000 divided by the tensile strength.

Reduction of area, minimum	30 per cent
Phosphorus, maximum	.05 per cent
Sulphur, maximum	.05 per cent

When high carbon steel frames are specified, the carbon content must be not less than .37 per cent and the reduction of area not less than 25 per cent; other requirements as above.

The Committee did not deem it advisable to submit a standard specification for vanadium steel frames at this time. On motion the Convention decided to refer the report to the Association for a letter ballot vote.

Maintenance of Electric Equipment.

FOLLOWING the report on Cast Steel Locomotive Frames, an individual paper by Mr. C. H. Quereau, on Maintenance of Electric Equipment was presented and discussed. After reviewing the elementary principles underlying electricity in so far as they are applicable to locomotives, the author declared that there was no greater danger in the use of electric locomotives than in steam engines, provided the same degree of care was exercised in both cases; that no radical re-arrangement of plan and equipment of machine shops is necessary to handle locomotives, and that it is not difficult to train machinists to repair the newer type of engine. In concluding he stated that "there can be no particular mystery or unusual danger in maintaining electric locomotives when the records for the year 1912, after five years' service, show a cost of less than four cents per mile and an average of 48,271 miles per train detention due to electrical apparatus, with a banner record of 249,423 miles (equivalent to ten times around the world), without a train detention due to the electrical equipment."

Mr. C. P. Keiser, of the Pennsylvania Terminal Division, stated that his experience had demonstrated that men trained in the maintenance of steam locomotives could, without trouble, look after the upkeep of electrical equipment, and that the enginemen who operate the electric locomotives are able, after six months, to make ordinary road repairs without difficulty. This view was corroborated by Mr. S. A. Bickford, of the New York Central, and Mr. G. H. Wildin, of the New Haven.

Main and Side Rods.

THE Committee on Main and Side Rods submitted a report on this subject two years ago. It was discussed at the last meeting and held over for a year for consideration, coming up at this time for adoption or rejection as a possible standard. The Committee, in the interim, received a number of suggestions looking towards changes, and reported that "these suggestions have been considered, but were not deemed of a nature to require changing or adding to the previous report." Taking them in their order, the Committee reports as follows:

"We are not yet justified in giving a limit of stress for heat-treated or alloy steels, as too little is known concerning such material in actual locomotive service.

"The design of pins is necessarily handicapped by the available space, therefore the designer is restricted, and must obtain best results regardless of preferred bearing area and desired ratio of length to diameter of pin. Furthermore, the design of pins is not a part of the problem submitted to us.

A general rule for type of offset rods described can not be formulated without danger of having it misapplied. The rule as given may err slightly on the safe side, but can not be misapplied. It is therefore preferable to make no change.

"Attention is called to a correction that should be made in the original report:

"In Volume XLIV, 1911, page 137, at bottom, a change should be made, as follows:

"The minimum area at points indicated by letter 'b.'

"For main rods and main pin bearing of side rods.

"A equals $\frac{Px}{30000b}$

"For side rods, except main pin bearing, A equals $\frac{Px}{60000b}$

"The report, including the correction just noted, was submitted for adoption as standard practice."

The Association adopted the report as Recommended Practice.

Maintenance of Locomotive Boilers.

THE Committee on Design, Construction and Inspection of Locomotive Boilers stated that they had no report to make on design and construction other than that presented to the members at the last convention. The report submitted covered only the question of maintenance of locomotive boilers. The Committee reported in detail the experience of various companies with both oxyacetylene and electric welding. Satisfactory results were being secured with both methods, although difficulties were experienced by various companies with both processes. The reports received from different roads indicate that considerable difficulty was experienced in welding flues with the oxyacetylene process, while the roads using the electric process report very satisfactory results, especially by one of the roads that tried out both methods and found that the electric process gave such good results that it has adopted this for standard practice, and has at least 200 engines now running with flues welded in. The flues have seen considerable service, and when engines were brought into shop for intermediate repairs it was not necessary to remove the flues, which had been their practice theretofore. Therefore, your committee recommends electric process for welding flues. The committee also recommends that flues be set with coppers, prossered and beaded in regular manner before welding, until it is clearly demonstrated that other methods are equally as good or better.

Figures collected by the committee indicate that the cost of welding with the electric process is cheaper than with the oxy-acetylene process, that the electric welded flues give better service and that engine failures are largely avoided and

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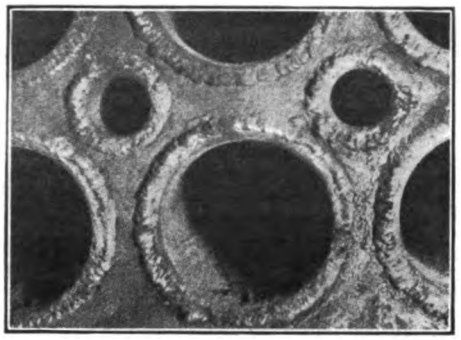
engines can be kept in service a greater length of time. It is stated that flues so welded can be run the three-year limit without removing and that roads using electricity finding it unnecessary to smooth off the felds. We reproduce herewith a cut showing an enlarged view of the flues when welded by electricity.



ENLARGED VIEW OF LOCOMOTIVE FLUES WELDED BY ELECTRICITY.

With reference to the welding of patches, the Committee reports that successful work had been done with both methods, although difficulties had been encountered by representative companies with both. The Committee feels "that there is a field in which each of the two welders, that is, electric and oxy-acetylene, excels the other. For welding seams, cutting out and removing old sheets, the oxy-acetylene excels. For welding flues, shore cracks and welding metal, where expansion must be taken care of, the electric welder excels. At engine houses the committee would recommend that electric welders be installed, and at shops, both electric welder and oxy-acetylene process be used, as oxy-acetylene process can be kept busy cutting out and applying new sheets.

"It is the consensus of opinion of the roads reporting that boilers should be washed with hot water. This method avoids sudden change in temperature and by this process the staybolts firebox sheets and boiler being washed clean in a shorter time. Most railroads now install hot water plants when building new roundhouses."

With reference to the question of flexible staybolts, the committee referred to the report made at the last convention and stated in addition that "the application of staybolts with some form of slack, is believed to be desirable as it relieves the firebox of excessive internal stresses which would be brought into play if the bolts are turned up tight."

Concerning the question of brick arches, the Committee reports that to secure the greatest efficiency the brick arch must be properly maintained and not often disturbed.

"The general practice seems to be to remove the center row of bricks when it is found necessary to bore or work on flues. Only enough brick should be taken out to enable the operator to get at the tubes. They must be removed as carefully as possible to avoid breakage. Some roads have a special brick-arch man, day and night, at the large terminals to make repairs to arches and to see that they are kept in good condition. Brick arch should be blown off with air by a pipe put in through the firebox door with a tee on the end which will blow the dirt, or a portion of it, to the corners where there is an opening which allows it to fall out on the grates."

Steel Tires.

THE Committee on Steel Tires reported no change in the specifications presented at the previous convention except the suggested addition of a new sub-clause: "(d) The elasticity shall be at least 50 per cent of the tensile strength." The Committee recommended the appointment of a standing committee on Steel Tires. The report was again presented for consideration. The Association by vote referred the recommendations to letter ballot for adoption as recommended practice, while the recommendation for making the committee a standing committee was referred to the Executive Committee without discussion.

Description of the University of Illinois' New Locomotive Testing Plant.

PROFESSOR S. C. SCHMIDT presented to the Association in an individual paper, a detailed description of the new locomotive testing plant at the University of Illinois. The equipment and characteristics of this plant were described in the May issue of the "Railway World," and it is not believed that a review of Professor Schmidt's paper is necessary in view of this fact.

Minimum Requirements for Locomotive Headlights.

THE Committee having charge of this subject reported that it had kept in touch with the various tests which had been made on headlights during the past year but was not in a position at that time to make anything other than a progress report. The committee was of the opinion that it is impossible to designate the minimum size of reflector and candle power of the source of light without going into the distribution of the light with the headlight, as a whole, and that this could not be done at the present time. Tests which have been made in the past year confirm the conclusion that high power electric headlights are a source of danger when used by railroads of several tracks and automatic signals. It is expected that the Committee will make a final report by January 31, 1914.

Superheater Locomotives.

SINCE the last report of this Committee, there has been an increase in the number of locomotives in the United States and Canada using superheated steam of more than 100 per cent, the total number now being 8,822. The reports received from the companies using this type of locomotive are uniformly satisfactory; the troubles that were feared with packing and valves have not developed or, where apparent, have been overcome. The Committee has not been able to determine any definite figure relative to the comparative maintenance cost of superheated and saturated steam locomotives, but the general opinion seems to be that if there is any increase in the cost of maintenance, it is

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not sufficient to be a serious factor. A large portion of the report of the Committee was given up to a compilation of the results of a series of tests of two Atlantic type locomotives, two Pacific type and two consolidation locomotives, one of each type equipped with a Schmidt superheater and the other using saturated steam, which was made by the Pennsylvania during the past year at its Altoona shops. The tests furnish the Committee with additional information on flue lengths.

"The short tubes show an advantage in activity of combustion and also in rapidity of evaporation, with an attending lower efficiency of the boiler, and we conclude that:

"(a) The most desirable length of tube depends upon how much the designer is willing to sacrifice in boiler efficiency to obtain rapid evaporation with some loss of heat.

"(b) There is a rapid decrease of temperature in the tubes for a distance of three or four feet from the fire-box end, after which the temperature drop is more gradual until, with this short tube, the curve of tube temperature becomes flat toward the smokebox end, and therefore the heat transfer at the firebox end of this tube is much higher than at the smokebox end.

"(c) The temperature of the superheater flue is in all cases from 100 to 200 degrees higher than the temperature in the boiler tube. This is probably due to the larger volume of gases passing a hot tube surface, namely, the superheater units.

"(d) Observations made on other locomotives indicate that there is little if any difference in temperature of flues as far as their location in the sheet is concerned.

"(e) From the boiler efficiency obtained with this locomotive, the form of the curve of temperature drop in the tubes, and the high smokebox temperature, slightly longer tubes seem desirable."

From the results secured by the tests, the Committee believes that "any locomotive in being converted from saturated to superheated steam should, with the application of the superheater, have enlarged cylinders, the results indicating that for the purpose of obtaining maximum economy the extent of the cylinder enlargement should be such that the maximum indicated horse power may be developed at a cut-off not exceeding 30 per cent."

In addition to the report of the Committee on Superheater Locomotives, the Convention listened to and discussed an individual paper on tests of superheater locomotives by Dean C. H. Benjamin, of Purdue University. Professor Benjamin used in large part the tests made by Dean W. F. M. Goss, of the University of Illinois, reported to the Association in 1909, as the basis of his comparisons. His conclusions agree generally with those of the Committee investigating the same subject.

Three Cylinder Locomotives.

MR. J. SNOWDEN BELL presented an individual paper on three cylinder locomotives in which he reviewed the history of this device, pointing out the advantages and disadvantages of each type heretofore designed. Commenting upon the economic advantages, through the use of this type, Mr. Bell states that "the most important advantage claimed for the three-cylinder locomotive is the attainment of substantially uniform turning moment, from which there results more rapid acceleration in starting and greatly increased smoothness and steadiness in running; reduced destructive action on rails and bridges; and the exertion of greater tractive power and utilization of a lower factor of adhesion than a two-cylinder engine. The system further affords facilities for providing increased cylinder power, equally divided in a balanced application, at a minimum cost of construction and maintenance, and is adapted for operation upon the simple, compound, or triple-expansion principle. The necessity of using a crank axle and connections, for the attainment of these results, of course, involves the objection of increased complication and cost, but with the materials and methods now available in the manufacture of crank axles, the objections to this form of driving axle, as compared with a straight axle, are reduced to a minimum, and, as compared with four-cylinder locomotives, a considerable number of which have been constructed, both in Europe and in the United States, the advantage, in point of simplicity and economy, is obviously materially in favor of the three-cylinder locomotive. This is also the case as to structural considerations, as on account of the limited space available between frames in four-cylinder locomotives, the crank cheeks must necessarily be made comparatively narrow, consequently giving insufficient length of fits for the axle and crank pin, in the built-up type, and being an element of weakness in the solid forged type. This objection does not obtain in the case of the single pair of crank cheeks of a three-cylinder locomotive, there being sufficient space to provide crank cheeks of ample width to prevent looseness in the fits, and by reason of its comparatively simple form, the axle can be readily forged in an ordinary railroad shop."

In connection with this paper, Mr. Bell presented a number of figures showing the comparative performance and the main physical characteristics of the three-cylinder locomotives recently constructed by the Reading. The results of the tests of these engines were reported by the "Railway World" in the January issue.

Special Alloys and Heat-Treated Steel in Locomotive Construction.

THE Committee having charge of this subject sent out a circular of inquiry outlining a series of seventeen questions. From the information received—it was believed to be sufficiently extensive to be typical—the Committee decided to make a progress report. From the replies, the Committee concludes that the greatest use of alloy steel is in locomotive frames, main and parallel rods, piston rods, axles and crank pins, although some roads are using alloy steel springs. In all these places, vanadium and chrome-vanadium steel is being extensively used.

The Committee concludes that "in a general way the use of heat-treated carbon and alloy steels has resulted in satisfactory service, increased mileage having been obtained from the materials with apparently fewer failures, although in the majority of the cases the material

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has not been in service long enough to make a fair reply.

"Seven roads do not require any heat-treated carbon or alloy steel axles and crank pins to be drilled, whereas four roads are at this time requiring drilling for the proper treatment. Present tendency seems to be toward requiring the drilling of shafts of large diameters.

Most of the members have not found it desirable to use alloy steels and heat-treated carbon steels in designs where excessive vibration or shock is not expected, five roads stating that this is their present practice. One member is using this material for springs, one for side rods and one for all machinery part for high-speed passenger locomotives.

"Heat-treated carbon steel can be obtained at a slight advance in price, whereas alloy steel may be purchased at an increased cost, approximately double that of the plain carbon steel, heat-treated."

Specification for Materials Used in Locomotive Construction.

THE Committee in charge of this subject, after conferring with the special committee of the American Society for Testing Materials, submitted a form of specification covering lap-welded steel boiler tubes. These specifications do not differ greatly from those of the above Society, the chief difference being an amplification by including arched tubes and large superheater tubes of 2½ in. in diameter and less. The specifications as submitted by the Committee were referred to letter ballot for adoption as Recommended Practice.

Smoke Prevention.

SEVERAL members of the Committee on Smoke Prevention were also members of a special committee appointed by the General Managers' Association of Chicago, to determine the advantages of steam jets in locomotive fireboxes as an aid to smoke prevention. Upon recommendation of these members, the report of the General Managers' Committee was transmitted to the Committee of the Master Mechanics' Association for inclusion in its report and publication in its proceedings.

The report in question deals most extensively with each of the various methods of preventing smoke both upon the road and in the roundhouse, giving exhaustive data concerning the comparative results of each method. After a careful review of all of the evidence collected, the committee reached the following conclusions:

"The steam-jet combustion tube has a decided value in reducing smoke under the widely varied conditions of these tests. The air injected by the tube was found to be the greatest factor in reducing smoke, although a small amount of steam seems essential in smoke reduction. When using steam-jets, injecting air into the firebox, it was apparent that a greater reduction in smoke was accomplished by their use with improper firing as compared with careful firing. The firebox temperature was found to be higher when the arch was in service as compared with the plain firebox, although the data do not consistently show that a reduction in smoke follows increased firebox temperature.

"The steam-jet tubes seem to give the best results in preventing smoke when located so that the injected air and steam meet the flame as high as possible above the fuel bed. If the arch is used the best results seem to be obtained when the air passes underneath the arch as high as possible above the fuel bed. The arch gives better results in smoke prevention if it fits tight against the flue sheet. A tight arch, however, has the practical disadvantage of collecting deposits of sparks and eventually closing the lower flues.

"An efficient design of smoke-box blower is an important factor in smoke abatement. Air openings in the fire door are of slight assistance in smoke abatement, as they are capable of supplying only about ten per cent of the air necessary above the fire and a very small percentage of the total air for complete combustion.

"Best results were obtained when from four to six pounds of air per pound of coal fired was injected by the steam tubes from a location in the back head above the fire door. It was found on these tests that the total amount of air, including that which was introduced above the fire, should not be less than 13 pounds per pound of coal for good smoke prevention.

"The data seem to indicate that the best results can be obtained when the least amount of steam is injected with the greatest amount of air.

"The use of the steam-jet tubes results in considerable economy, and in the efficiency tests an increase in evaporation was obtained.

"The steam-jet tubes apparently reduce the weight of sparks discharged from the stack, but the data were not of a character to firmly establish this point.

"There is a necessity for a quick-acting, easily operated valve capable of giving reasonable graduations in pressure.

"It was found during the tests that the steam nozzles were being worn by the steam and this accounts for the inability of the steam lines to supply as great a pressure to the jets as desired in some of the later tests. The nozzles were made of brass. The indications are that they should be made of steel and, if necessary, hardened. The 3-16-in. diameter steam nozzle seems to be the desirable one to use in a two-inch tube.

"There is noise incident to the use of the steam-jet tubes in the most efficient arrangement, and if the steam-jet tubes are located in the cab they should be covered with a ⅜-inch cast-iron box provided with cast-iron air intake from a point outside the cab, the air intake being provided with a muffler."

Engine and Tender Wheels.

THE Committee having charge of this subject, after a careful study, submitted a report including eighteen recommendations regarding recommended standards, and covering, among others, the following topics: specifications for solid wrought carbon steel wheels for locomotive and tender service; chemical properties and tests; tolerances; branding; finish, and inspection.

The report of the Committee was referred to letter ballot for adoption of the various recommendations made by the Committee as Recommended Practice.

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MASTER CAR BUILDERS' ASSOCIATION.

THE Master Car Builders' Association held its 47th Annual Convention at Atlantic City, on June 16th-18th inclusive. The Convention was one of the best attended and most interesting gatherings which this body has held, and the reports submitted by the standing and special committees were of an unusually high order.

President C. E. Fuller, of the Union Pacific, in his opening address, asked whether the Convention had given proper attention to the question of reducing the cost of maintenance and operation of equipment. He suggested the thought that perhaps too much attention had been given to car construction and to the formulation of rules looking towards a reduction of delays in interchange of cars. He hoped that the members, in dealing with the various reports brought before them, would be careful to avoid doing anything which would mean an increase in maintenance and operating expenses which could not be satisfactorily defended before the bar of public opinion on the ground of safety and economic progress.

He recommended that the Committee on Car Construction should be continued and that it should undertake an investigation of the advisability and practicability of constructing cars of heavier capacity—say of 70 tons—so as to increase the tonnage and enable them to reap the benefits of reduced rates and heavier tonnage, without increasing the length of the trains.

The method of insulation of steel passenger cars, in Mr. Fuller's opinion, merited the earnest study of the Association, as did also the question of adopting a standard M. C. B. coupler. Mr. Fuller commented upon the vexing question of the abuse of repair cards or the making of "pencil repairs," which is alleged to be done by certain companies, and hoped that it would be possible for the Association to work out a solution of this trouble.

Revision of Standards and Recommended Practice.

THE first committee report to be considered was that of the Committee on Revision of Standards and Recommended Practice. The report of this Committee, as usual, dealt with various proposed changes in the standards heretofore adopted by the Association, practically all of which were of a minor character, intended either to clarify obscure rules or to cover contingencies not included within the original rules.

The Committee adversely reported upon the suggestion that the condemning limits be increased from 3¼ in. x 7 in. for journals to 5½ in. x 10 in. journals, in order to provide a sufficient margin of safety. The Committee approved of the recommendation of advancing axles with 6 x 11 in. journal, designed to carry 50,000 lbs., to standard; the Committee also recommended that the action of the 1912 Convention as regards a standard for signal lamp sockets be made the standard of the Association; that the recommended practice of marking on freight equipment cars be made standard, as well as the recommended practice as regards springs and spring caps for freight car trucks. The Committee recommended practice as regards classification of cars, in accordance with the request of Mr. G. P. Conard, secretary of the Association of Transportation and Car Accounting Officers for the assignment of designating symbols for equipment. The request covered the following classes of equipment:

"BM"—Milk Car.—Exclusively for the transportation of milk, being a car for this purpose and fully equipped for handling in passenger trains.

"ES"—Electric Passenger Car.—For long hauls or suburban service; multiple unit, and fitted with automatic couplings and air brakes. Operating power, storage battery.

"GB"—Gondola Car.—A car with solid bottom, sides and ends, and open on top; suitable for mill trade.

Note to Follow Class "H."

If any of these hopper cars are provided with roof or cover for protection of contents, the letter "R" should be affixed to the regular symbol to designate its special class of service.

"MBE"—Combination, Baggage, Mail and Express Car.—A car having three compartments, each entirely separate from the other for handling its individual class of business.

"MPB"—Combination, Baggage, Mail and Express Car.—A car having an individual compartment, each entirely separate, one suitable for mail, one suitable for baggage, and one suitable for passengers.

"XI"—Box Car, Insulated.—A box car having walls, floor and roof insulated, not equipped with ice bunkers or baskets. This car ordinarily used for transporting vegetables, freight, etc.

"MWX"—Boarding Outfit Cars.—This includes cars used for boarding, sleeping, or cooking purposes in construction and similar work.

The Committee concurs and assigns symbols as indicated.

A member suggests assigning designating symbols to the following class of equipment:

Symbol.	Kind of Car.	Description.
"MWE"	Ballast Spreader and Trimmer.	A car with blades or wings for spreading or trimming ballast.
"MWJ"	Ballast Unloader.	A car equipped with machinery for pulling a plow through cars loaded with ballast.
"MWP"	Pile Driver.	A car equipped with machinery for pile-driving.
"MWK"	Snow Removing Cars.	Cars equipped with any special device for removing snow from between or along side of rails.
"MWM"	Store Supply Car.	A car equipped for handling material to be distributed for railway use.

Following the heading of "General Service Freight Equipment Cars," not to be added as follows:

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Any of the following classes of equipment having special heating appliances for the protection of commodity against freezing, to be covered by affixing the letter "H" to the designating symbol.

"SH"	Horse Car.	A car specially fitted for the transportation of horses in freight service.

The Committee concurs in the recommendation, so far as designating symbols are assigned.

The Committee further recommended that the proceedings of the Committee on Standards and Practice be separated from the proceedings of the Association as at present published, and should be published as a separate volume.

Train Brake and Signal Equipment.

THE Committee on Train Brake and Signal Equipment recommended that hereafter all freight cars weighing between 37,000 and 58,000 pounds be equipped with ten-inch brake cylinders, and that the braking power for freight equipment should be made sixty per cent of the light weight car, based on 50 pounds per square inch cylinder pressure. With the recommended size of brake cylinder, this would mean a total leverage of nine to one as a maximum.

Upon the basis of the responses to inquiries addressed to air-brake companies, the Committee concludes that K-1 triple valves are favored for eight-inch and K-2 for ten-inch equipment. The advantage to be derived from the adoption of a standard triple valve for all freight equipment and the elimination from service of several different types are so obvious that your committee does not hesitate to recommend that the K-1 and K-2 triples be made the standard for freight cars.

Proceeding to an examination of the effect of the relative increased weight and the length of passenger trains upon the problem of securing uniform application of air-brakes and to avoid sticking brakes, the Committee concludes that "the internal diameter of the brake pipe plays a very important part in the satisfactory operation of the brake, and therefore your committee gave this matter careful consideration, having before it a report of the results of tests made by the Westinghouse Air Brake Company to determine the effect on brake operation of various internal diameters of brake pipe. This report clearly shows that no pipe having an internal diameter less than that of one-inch standard weight pipe should be used on passenger cars. It also shows that the larger internal diameter of the 1¼-inch extra heavy pipe had some important advantages over the internal diameter of the one-inch standard weight pipe, especially with respect to satisfactory release of brakes at the rear.

"Your committee therefore recommends that no pipe having an internal diameter less than that of one-inch standard weight be used on passenger cars, and that for all new equipment 1¼-inch extra heavy pipe be used.

"The action of acids and salt water drippings from coal and refrigerator cars falling onto the brake pipe and its fittings causes them to deteriorate rapidly, and it has been suggested to this committee that the brake pipe on such cars should be galvanized to protect them.

"While the committee has no definite data on the amount of damage caused by the action of acids on the exterior of the pipe, yet it is known to be large, and it has been discussed at previous conventions. To galvanize the pipe does not add materially to its cost, while it serves to protect it from corrosion. It would, therefore, be a paying proposition to galvanize all brake pipe and fittings, and the practice of doing this is recommended."

Brake Shoe and Brake Equipment.

THE Committee having charge of this subject repeated the recommendation of last year as regards the necessity of additional tests to determine the effect of high brake shoe pressures upon the standards heretofore adopted by the Association, covering in particular, tests at a speed of 65 miles per hour and at pressures of 9,000, 12,000, 14,000, 16,000 and 18,000 pounds. With reference to what changes, if any, are necessary in brake beam equipment, the committee recommends the adoption as Recommended Practice of a type of brake beam shown in detail in diagrams accompanying the report. It also recommended:

"That the question of preparing a specification for a brake beam for passenger train cars be submitted to the membership of the Association for letter ballot, and that a spacing of 60 inches be adopted as a standard for brake beam heads, with a maximum allowable spacing of 60⅛ inches and a minimum of 59⅞ inches, this spacing to be measured by gauging the inside of the brake head key lugs."

Coupler and Draft Equipment.

THE report of this Committee contained the results of the tests outlined in the report of last year and which were to be carried out during the year under the direct supervision of Mr. C. D. Young, engineer of tests and the chairman of the committee, in conjunction with the Pennsylvania Railroad. The results of all the individual tests, covering a wide range of couplers, were plotted graphically, the graphs being included as a part of the report. The tests covered both laboratory and road trials and were of the most thorough character, and the data secured will be of great service to the railway industry in perfecting the coupler.

At a joint meeting held in February, 1913, of the representatives of coupler manufacturers and of the Coupler Committee, it was decided that the straight line contour submitted by the National Malleable Castings Company is based on the correct principles, being preferable to the M. C. B. contour, and "that a contour line should be developed with the straight face as a basis, incorporating in the same the features of the American Steel Foundries No. 5 contour line and the contour submitted by Mr. Richards of the Gould Coupler Company. The National Malleable Castings Company agreed to do this and submit the new line to the Chairman for approval. This proposed contour was drawn up, approved and tried out on the special coupling and angling machine located at the Cleveland works of the National Malleable Castings Company during the week of March 17, 1913, under the direction of Coupler Committee representatives, Messrs. Kleine, Justus and Boring."

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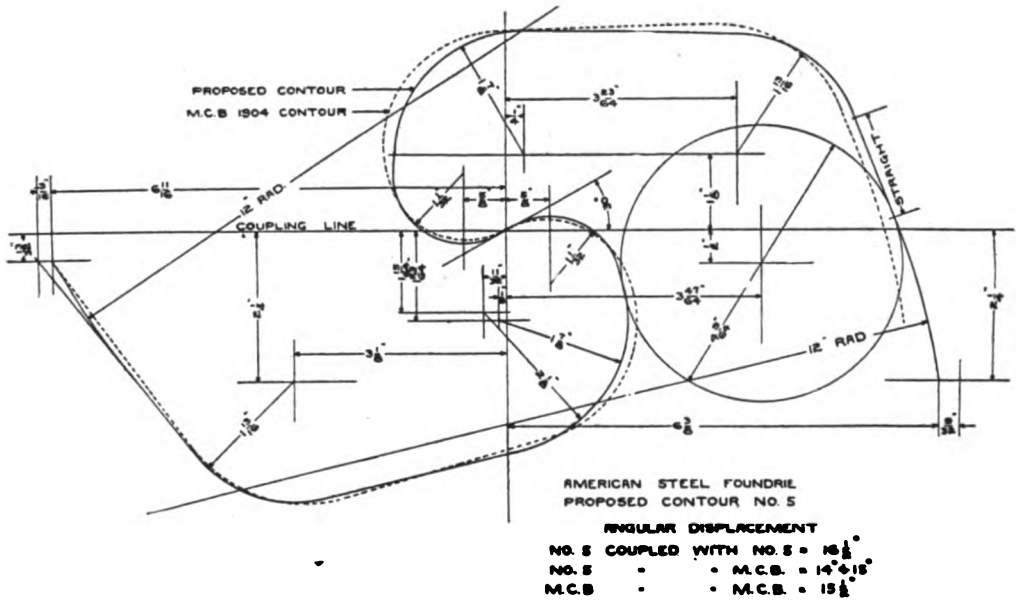

Proposed Straight Line Contour; American Steel Foundries No. 5.

Various designs of straight line contours were accordingly worked out and subjected to an exhaustive series of tests in competition with the M. C. B. contour. "In summing up the trials, each representative present voiced his views and it was decided that the proposed straight line contour and a contour not reducing incline of coupler face but embodying enlargement in diameter of knuckle hub and other slight changes over present M. C. B. contour as represented by the American Steel Foundries No. 5 contour, should be given a large and thorough trial in service, with the feeling that if the proposed straight line contour couplers gave no general trouble in coupling it should be adopted, otherwise we should hold to a contour having incline of coupler face not reduced over present M. C. B. contour and make the best of it in buffing, even though it was not designed for sustaining the enormous shocks imposed in buffing in service."

The dimensions and main characteristics of the proposed straight line contour coupler, following the standard represented by the American Steel Foundries No. 5 contour, are shown in the accompanying illustration. "The general investigation of coupler conditions and the result of tests—static, dynamic and road—conducted by your committee, as well as the great number of couplers and parts requiring renewal, demonstrates beyond a doubt that the present coupler is inadequate in strength to meet the increased demands placed upon it, consequently considerably curtailing its life, which is aside from the desirability of reducing the number of designs to a minimum. The investigations and developments made during the past year have satisfied your committee that this required increase in strength can be accomplished, but the weight of the coupler will necessarily have to be increased from 30 to 40 per cent."

After your committee has selected the couplers to be placed in service to be tried out experimentally, and the service tests show that no serious defects exist, the members will be notified which couplers can be recommended for trial purposes, so that a general trial, in limited quantities, can be made by the railroads to ascertain their suitability for general service; this trial to be preferably conducted on locomotives. Until this announcement is made, your committee must earnestly request the railroad representatives not to apply any new or experimental types of couplers on freight cars which involve new designs unless the parts are interchangeable with present couplers in service, as by so doing it will forestall the work of the committee, and, for various reasons, possibly prevent the Association from arriving at a successful issue of the one-standard coupler.

The face test, as has been previously stated, is found unsatisfactory along the lines of obtaining uniform results, and while your committee has experimented with the "Hb" tests, it is not prepared at this time to propose it as a substitute for the face test, but recommends that the "guard-arm test" previously a Standard of the Association be again made Standard to replace the face test until some more suitable test can be devised.

Car Wheels.

THE Standing Committee on Car Wheels submitted at the last Convention a proposed specification covering the dimensions and tolerances for solid wrought steel wheels for freight and passenger service, which were subsequently adopted as recommended practice. These specifications did not include rules concerning the process of manufacture and with respect to the chemical and physical properties of the material, or analyses and tests of the finished product. The determination of these questions constituted the major portion of the work of the committee during the last year.

The specifications were revised to include all

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additions and changes which experience and other investigations of the committee showed to be necessary. No physical tests of steel wheels are included in the report of the committee, that body being unable to determine a proper physical test for such purpose. The committee performed a number of experimental tests, but did not secure sufficient data to enable any intelligent decision.

Revision of the Rules of Interchange.

THE Committee having charge of this subject submitted in its report the reports heretofore published and distributed covering arbitration cases Nos. 881 to 917. The reports of the committee on these matters have been commented upon from time to time in the "Railway World." In addition the committee dwelt upon a large number of matters which were thought of sufficient importance to warrant a definite report.

With reference to the matter of rules of interchange, the committee reported that, at the suggestion of the Arbitration Committee, a committee from each of the railway clubs was appointed to consider jointly the proposed changes.

Heretofore there have been suggestions made by the different clubs which varied only slightly, while others were more radical. It was thought that if the club representatives were given some latitude in regard to modifying or changing the suggestions that the resultant changes proposed would be in better shape for consideration both by the Arbitration Committee and the Convention.

A meeting of this joint committee was held in Chicago on April 14th, at which meeting representatives from the New England, Central, Pittsburgh, Canadian, Western, St. Louis and Southern and Southwestern Railway Clubs were present. Their recommendations are shown under each rule.

At the request of several members of the Association, representing cars of private ownership, a hearing was given by your committee on May 6, 1913, at which representatives of the following companies were present:

Armour Car Lines.
Morris & Co. Refrigerator Line.
Swift Refrigerator Transportation Co.
Cold Blast Transportation Co.
Street's Western Stable Car Line.
Mather Stock Car Co.
Western Live Stock Express.
Missouri River Despatch.

These gentlemen suggested changes in Rules 33, 40, 55 and 95, which suggestions appear under the respective rules, for the following reasons.

In so far as Rules 33, 55 and 95 are concerned, as they now stand, they give individual car owners no protection whatever where material is lost on the lines of the railroad companies, regardless of its condition; neither do they protect them against material missing on account of being struck or torn off, the expense of which should be borne by the handling company. Practically all of the material lost from other causes is in good condition when lost, and can be used, and in a large percentage of cases would not have been lost had proper repairs been made to the part responsible for its loss at owner's expense.

As regards Rule 40, they protest against the elimination of the rule, and suggest a proposed change, stating that its elimination would leave no protection to the car owner against breakage due to rough handling or accident. The proposed change under this rule, they state, would afford car owners protection and at the same time enable the handling company to repair the cars without special authority from car owners.

In regard to the addition of ten per cent to car repair bills, effective November 1, 1912, they advise that the data at hand are not sufficient to show its outcome, but from the earnings and expenses of the cars represented, they feel that as the investment for cars affected was made under conditions which did not embody such percentages, that the ten per cent should not be added until further consideration is given to the revenue feature of the investment.

These suggestions and arguments have been carefully considered, and under each rule, as referred to above, the recommendations of your committee will be found.

Freight Car Repair Bill and Abuses of the Repair Card.

THE Committee appointed to consider this subject conferred with a committee from the Association of American Railway Accounting Officers, considering, among other matters, a letter from Mr. F. A. Delano, receiver of the Wabash, who made a number of suggestions concerning rules now existing and improvements which should be made. Upon the basis of the investigation and the conferences, the committee reported that:

A. Bills should not be rendered for amounts less than twenty-five cents (25 cents) in aggregate, but charges for items less than twenty-five cents (25 cents) may be held until they amount to that sum, provided said aggregate is rendered within sixty (60) days.

B. No bills should be returned for correction on account of incorrect car numbers, but shall be passed for payment at once and the alleged errors in car numbers brought to the attention of the company rendering same within sixty (60) days from date of receipt of bill.

The billing company shall furnish correct car reference, or shall issue within thirty (30) days counter charge authority, as per Form 1 attached.

C. No bills shall be returned for correction on account of other error or questionable charges unless the net amount involved exceeds ten per cent of the total amount of bill, but shall be passed for payment at once and the alleged error brought to the attention of the billing company within sixty (60) days from the date of receipt of bill. The billing road must furnish proper explanation or shall issue, within thirty (30) days, counter charge authority on Form 1.

D. Undercharges shall be similarly adjusted on regular authority of the company against which the bill has been rendered.

E. When bills are returned for correction, all defect cards and billing repair cards, except those in question, must be retained by the company against which the bill has been rendered.

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FORM 1.

M. C. B. ASSOCIATION—COUNTERBILLING AUTHORITY.

(Name of Railroad)
Place.....191..
This will Authorize the.....
Railroad Company to counterbill the.....
.....Railroad Company.
..... Dollars
to offset overcharge in our bill No.....
Amount, $.....
$..... .....
Signature of person issuing.
This authority must be attached to bill.

The committee further reported that it believed that "the price of labor and material established by the M. C. B. Association is less than cost, if supervision, the use of facilities and tools and other shop expenses are taken into consideration. This has a tendency to cause some car owners to encourage the making of repairs to cars by the handling company. Therefore we suggest that the Master Car Builders' Association make such changes in the allowances for labor and material as will more nearly represent the actual cost of repairs.

"Relative to the first suggestion in Mr. Delano's letter, your committee agrees with this suggestion, and to enable the car owners to make a check of the car repair bills on basis of car days, recommends that M. C. B. Rule 93 be changed to read as follows:

"'Rule 93. Separate bills must be rendered for cars destroyed.'

"All charges for repairs made to cars account of owners' defects, defect cards and rebuttal authorities must be consolidated against any one company into one bill.

"Separate statements to be made:

"First. For owner's defects for each calendar month.

"Second. For all charges based on defect cards, including rebuttal charges.

"Note.—Totals only of these statements to be shown on the recapitulation."

Prices for Labor and Material.

AS the result of an extensive investigation made into the question of the fairness of prices as provided by the schedule of the Association for labor and material, the Committee having charge of this question reported what in effect is a complete new schedule of prices, in practically every case considerably higher than those heretofore provided. A feature of the recommendations was a change proposed in the depreciation rates, the new rates being in substance, one of seven per cent per annum upon the yearly depreciated value, in the case of wooden car bodies, one of six per cent per annum in the case of wooden cars with steel center sills and a depreciation rate of six per cent per annum in the case of all steel bodies, while in the case of tanks or tank cars for handling non-corrosive substances, a rate of four per cent per annum was proposed. The rate for tank cars handling corrosive substances was to be five per cent, the depreciation of trucks other than metal seven per cent, and of metal trucks five per cent per annum.

The report of the committee was accepted by the Convention with the exception that the recommendations as to depreciation were not approved, the rates to remain the same as last year.

Revision of Rules for Loading Material.

A LARGE number of revisions in the rules of loading special classes of freight were proposed by the Standing Committee on Revision of Rules for Loading Material. The purpose of the revision is to prevent accidents or damage to the freight in transit and to secure greater safety in operation. In all, revisions were recommended for forty-one rules.

Overhead Inspection of Box Cars.

ONE of the most interesting and valuable reports submitted to the Convention was that of the Standing Committee on Overhead Inspection of Box Cars. This committee reported, after a lengthy investigation, against the use of forms of inspection cards for handling each of the following classes of freight—"flour," "cement," "grain," "rough freight," "not fit for grain," "cement or plaster"—on the ground that it would lead to confusion and would prove unsatisfactory to the carriers. Instead, the committee recommended the use of one card in substantially the following form:

A. B. & C. Ry.
This car
No. ..... Initial.....
O. K. FOR SHIPMENT OF COMMODITIES.
Under.....Classification.
Inspected by .....
Date .....191.. Station .....
(Size of card, 6 by 8 inches.)

On back of cards, inspection instructions should be printed as follows:

INSPECT FOR

Classification "A."

Leaky roof.
Loose siding.
Loose roof boards.
Shifted roof sheets.
Broken door stops.
Leaky doors, tops and sides.
Broken end posts.
Broken or loose door posts.
Protruding nails in floor and lining.
Floors soiled by oil, grease or any material carrying odors likely to damage lading.

Classification "B."

Leaky roofs.
Loose siding.
Loose roof boards.
Shifted roof sheets.
Broken door stops.
Leaky doors, tops and sides.
Broken end posts.
Broken or loose door posts.
Holes in floor and around center plates and draft bolts.

Classification "C."

Leaky roofs.
Loose siding.
Loose roof boards.
Shifted roof sheets.
Broken door stops.
Leaky doors, tops and sides.
Broken end posts.
Broken or loose door posts.
Protruding nails in floor and lining.

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Method of Inspection Before Loading.

(A) Inspection to be made at point of loading whenever practicable.

(B) At point of distribution from which car is forwarded to loading station, and again by Agent.

(C) Cars received and unloaded at station where no inspectors are located, should be inspected by the Agent.

Aside from the Master Car Builders' inspection of car, including roof, running boards, air brakes, safety appliances, and running gear, as well as the external inspection of sides, ends, doors, ventilators and windows, an internal inspection must be made of the roof and siding, with doors, ventilators and windows in closed position.

1. Search for light indicating openings and cracks which might produce leaks.

2. For loose, damaged and broken boards, loose knots, knot holes, bad joints, etc.

3. For all nails and bolts extending above surface of floor and lining and nails protruding through roofing.

4. Search for water stains indicating cracks and air spaces.

5. Search for cracks sufficient to admit storm water beating through opening, also for openings and bad joints around window and doors.

6. Examine for metal sheets out of position along edge of subcarlins or down from edge of ridge pole.

7. Search for small holes in metal roofs due to rust or small openings in roof from other causes.

8. Doors must open and close properly.

The floors should be clean, dry and free from defects sufficient to admit moisture, and any fouling by previous shipments, such as fertilizer, oils, and other freight which would damage more perishable commodities.

If the centerpin is uncovered, it might be necessary to cover it with a piece of board, depending entirely upon the character of freight to be loaded. It is necessary to inspect closely for defects in framing, which might result in the sheating becoming broken or damaged.

The committee expressed the belief that the railroad companies could, with profit to themselves, adopt a form of inspection such as it had outlined, and that it would prove practicable in use.

Car Trucks.

THE Committee on Car Trucks reported that it was now conducting, but had not completed, a series of tests concerning the various designs of cast steel truck sides, and that after the tests upon this matter, as well as those relative to cast steel truck bolsters, were concluded, it was likely that revisions would be suggested in the M. C. B. recommended practice. The committee further reported that it was making a series of tests of the M. C. B. arched bar side frames as well as a number of individual designs to determine their relative strength, and that this data will be valuable for comparison with that covering the cast steel side frames, when completed.

Progress was also reported in the investigation of the subject of springs, which will not be completed until Fall. It is expected that the conclusions will provide for five springs under each end of the bolster for trucks with 6 x 11 inch journals, and four springs under each end of the bolster for trucks with 5½ x 10 inch journals, each unit for the two types of trucks to be of the same design.

The committee requested that members communicate to it any data in their possession showing wherein the present standard center plate has proven unsatisfactory, as well as any recommendation which they may have as to improvements.

Train Lighting.

THE Committee on Train Lighting recommended a standard design of axle- dynamo suspension:

"Axle-dynamo suspensions must be designed so that with full diameter wheels and truck on straight, level track, any part of the dynamo or suspension must have a clearance not less than six inches above top of rail, and a clearance of at least 3½ inches between any part of the mechanism attached to the car body.

"In axle-dynamo suspension the metal carrying the weight of the dynamo must not be subjected to wear.

"In axle-dynamo suspensions, if side arms are used, the end to be secured to the truck frame must extend under transom and be bolted to the side frame near the transom, and if carried through or over end sill, must be held securely to end sill by a hooked bolt not less than ¾ inch in diameter.

"When possible, the belt should go over the end sill and under the brake beam with belt clearances of at least one inch."

In addition, recommended practice as regards standard design of battery boxes were recommended, and the committee also suggested recommended practice as to maintenance and repair of batteries.

Train Pipe and Connection for Steam Heat.

THE Committee having charge of this subject submitted proposed specifications to the Convention held in 1912. The Association decided to submit these specifications to a letter ballot. The result of the ballot was the rejection of the proposed specifications. The Committee thereupon continued to investigate the subject, making a number of tests and securing whatever additional information was available from manufacturers and others interested in the subject. As a result of this study and of the criticisms which the committee received from members relative to the previous specifications which had been rejected, the committee prepared a new set of specifications for steam heat hose and couplings, which was submitted to the Convention. The new specifications differ from those of the previous year largely as regards the matter of detail and the omission of specifications for both a medium sized coupler and what is known as the large coupler, the committee having come to the conclusion that the difference is so slight as to be unwarranted, and that therefore it would be best to recommend what is known as the medium-sized coupler for universal use.

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Tank Cars.

SINCE 1912, the Tank Car Committee has approved, as meeting the requirements of the Master Car Builders' specifications for special tank cars, the design and specification for lagged tank car for the transportation of liquified chlorin gas, submitted by the Goldschmidt Detinning Company; the design and specification for the same type of car for the transportation of liquified petroleum gas, submitted by the Pennsylvania Tank Car Company, and the design of cast steel vent for sulphuric acid tank cars, submitted by the Crescent Tank Line.

The committee has still pending before it, as incompleted work, the design for the tank car for casing head gasoline, submitted by the German-American Car Company, and the question of using existing tank cars for the transportation of ammonia solutions.

"As regards the tests of tanks and safety valves now provided for by the Tank Car Specifications, your committee feels that some improvement should be made on the present practice, by requiring that a certified record of the tests shall be available in some one office. Heretofore the rule has been that the railroad on whose line a car is at home shall exercise supervision. The importance of these tests will be very great in the event of law suit following damage, and your committee believes that the office of the Chief Inspector of the Bureau of Explosives would be the proper place for the filing of these certificates. Considering the fact that the Interstate Commerce Commission requires that tank cars shall conform to the rules of the Master Car Builders' Association, it is highly probable that a ruling will be made by the commission, fixing the procedure to be followed in reporting the tests of both cars and valves.

"Nothing has transpired during the past year to call for any radical changes in the Tank Car Specifications. The changes which the committee recommends, which are detailed on the accompanying sheet, are principally with a view to removing ambiguities."

Specifications for Freight Car Truck Sides and Bolsters.

THE Committee having charge of this matter reported that owing to the absence of any funds to provide for further experiments, it had been unable to make any progress during the past year, and that if the committee was to be continued, funds be provided for making tests in order to procure the information necessary to prepare final specifications for truck sides and bolsters.

Capacity Marking of Freight Cars.

THE Committee having charge of this question submitted to the various member companies the following question:

"Whether your company owns or operates any cars the body or trucks of which are strong enough under the present stenciled capacity, but which would not be strong enough under the proposed light-weight and maximum-weight stenciling. If so, give number and class of such cars."

"The majority of the roads vote in the affirmative in answer to this question. Out of the 924 votes, 662 report owning certain cars that are not strong enough and to which it would not be advisable to apply the 'Maximum Capacity' plan of stenciling. While there does not seem to be any doubt, as a rule, regarding the structural strength of the modern car, and its ability to carry the increased load permitted by the 'Maximum Capacity' plan of stenciling, 23 roads report certain types of structurally weak cars, such as flat, gondola, and wooden-underframe cars, which would develop higher stresses under the maximum loading than would be proper or permissible."

In addition, the committee submitted the following question to the members:

"Whether or not it would be more advisable to apply the rule or light-weight and maximum-weight stenciling to steel and steel-underframe cars exclusively, and moreover to such cars of this class as have a factor of safety sufficient to carry the maximum load; also, in the opinion of the members, what the minimum factor of safety should be for maximum loading, stenciling."

"Of the 924 votes represented, 443 (12 roads) are in favor of confining the 'maximum weight' method of stenciling to steel and steel-underframe cars, two lines did not vote directly on the question, and 463 votes (21 roads) do not approve of this plan; some on the grounds that it should apply to all classes of cars whose strength would permit it, others on the ground of confusion to shippers, etc."

"In line with the limited views expressed as to factors of safety, we feel that the light-weight and maximum-load stenciling should be confined to cars of steel or having steel underframes that have a factor of safety of three or better in the body structure, when figured for the maximum load, and with respect to trucks under such cars, the rule should be applied to all trucks having arch bars of M. C. B. dimensions or better, and to all trucks having cast-steel side frames, and to the various forms of special trucks such as pedestal type trucks of the box and other varieties, where the strength of factor of safety is equal to or greater than the equivalent M. C. B. arch bar."

The committee recommends that pending further investigation by it, the subject of stenciling on light weight and maximum load be referred to the American Railway Association in order to ascertain whether there are operating or traffic conditions which would interfere with the proposed method of stenciling.

Lettering Cars.

THE Committee on Lettering Cars, after conferring with representatives of the Superintendents' Association of St. Louis, with reference to the suggestions of that body that separate letters be placed on each side of car, near the door hasp, for seal record purposes, so that such records could be taken by letters instead of using the words "north" and "south" or "east" and "west" with reference to the sides of cars, reported adversely upon the proposal for additional lettering, but suggested that inasmuch as the matter was one designed for the benefit of the operating department, a letter ballot be taken to ascertain the views of all of the members of the Association.

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Air Brake Hose Specifications.

THE Committee having charge of this subject presented a complete set of specifications for air brake hose, constituting a revision of the recommended practice adopted in 1901, advanced to standard in 1903 and revised in 1905. The new specifications are to be referred to members for letter ballot.

Revision of Form of Present Specifications.

THE Committee on Revision of Form of Present Specifications reviewed during the past year the existing specifications with a view of harmonizing the form and bringing about any changes in substance which might be necessary. The committee followed the outline of instructions prepared for this work, corresponding closely with the existing standard of the Committee on Style of the American Society for Testing Materials. The specifications, after they had been re-drawn, were submitted to the various chairmen interested in the subject, for their approval, which was obtained. The committee recommended that the instructions covering the form of specifications be adopted by the Association for future use in preparing specifications; that the specification for iron axles be discontinued from the standards of the Association; that certain items in the rejection limits need correction, and that a special committee should be appointed for this purpose, and that specifications should be prepared covering about forty items of material for which no specifications now exist. The various changes in specifications recommended cover a wide range and are set forth at length in the report of the committee.

Damage to Freight Car Equipment by Unloading Machines.

THE Committee appointed to investigate this subject took advantage of the investigations already made by the Pennsylvania, the Lake Shore, the Baltimore & Ohio and other systems. After a careful investigation, the committee reported that the principal features to be considered in providing protection of cars from damage by unloading machines are:

"First: Provide as much bearing as possible on cradle side for car and at the same time insure ample clearance for safety appliances and other attachments projecting beyond side stakes of car.

"Second: Allow for sufficient variation for spotting cars in cradle, so that time will not be lost in placing cars, with a resulting decrease in the capacity of car dumper. The protection should be so placed that when a car is stopped anywhere within two feet said blocking will be ample to support car on its side. A greater allowance than two feet is to be preferred when it can be provided without making a supporting area so small that car will be damaged.

"Third: Provide blocking so that the bearing face can be quickly renewed, so that it may be maintained in proper condition at all times by applying same when machine is idle, to avoid necessity of shutting down dumper to apply blocking.

"Fourth: Provide guide plate at in-bound end of cradle for entering cars with spread sides, as per Plate 4, Figs. 1 and 2.

"Fifth: Machine to be provided with not less than four vertical clamps, and each of these to be equipped with extension clamp.

"Sixth: Grade of yard track leading into cradle to be of 100 feet radius, to prevent damage to carry irons when cars are moved into machines coupled.

"Seventh: Timber lining to be cut at angle at lower ends to permit contents spilled into cradle to get out on next turn of cradle.

"Features to be considered in addition to the above, but only on solid floor type machines, are:

"Eighth: No side pressure to be used which will force car against lining in cradle with a pressure greater than the combined weight of car and contents.

"Ninth: Vertical clamps to be operated by gravity so that pressure on top of car will not exceed that now used in movable-platen type machines.

"Tenth: Top of I-beam in floor system and just outside rail to be made same height as rail."

Electrical

Electrification at Chicago.

THE ordinance introduced in the Chicago City Council requiring the railroads entering that city to electrify their lines, has emerged from committee, having been amended therein so as to extend the date after which no steam locomotive can be operated in the city until July 1, 1915. The ordinance passed first reading on June 3rd, with one dissenting vote. Mr. Harry A. Wheeler, of the Chicago Association of Commerce, and Mr. Robert Redfield, representatives of the Pennsylvania group of railroads, urged the committee not to take action until the commission now investigating this subject makes its report. It is the general impression that the railroads will vigorously oppose the ordinance when it comes up for final action, and that in the event of its passage, a long legal battle will ensue. It is held to be unfair to force the railroads into this tremendous expenditure while the terminal question is yet undecided and while no definite plan has been worked out as regards the best method of electrifying, both from the standpoint of the city and of the railroad companies.

Progress of Electrification in the United States.

IT is interesting at times to take account of the extent to which any large movement, such as the electrification of steam railroads in the United States, has progressed. Such an inventory, or analysis, brings out many interesting facts which cannot be properly appreciated in the day to day examination of current events, and shows how rapidly or how slowly a great movement is progressing. Such a comparison

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has been made by the "Electric Railway Journal" which, in its issue of June 7th, reviews fully but briefly the work of electrification thus far completed or announced by the various large railroad systems of the country. The article is illustrated by a number of excellent maps showing the sections of the country in which important electrification has been undertaken. According to the "Electric Railway Journal" the electrified steam railroads of the United States in operation or under construction are as follows:

Railway.	Miles of Single Track.	Electrification System of	Mileage Total
Baltimore and Ohio	7.4	Low voltage d.c.	....
N. Y., N. H. and H. and B. and M.	104.4	Low voltage d.c.	....
New York Central Lines	371.6	Low voltage d.c.	....
Pennsylvania System	435.5	Low voltage d.c.	....
Total of low voltage direct current			918.9
Butte, Anaconda and Pacific	90.0	High voltage d.c.	....
Southern Pacific	96.0	High voltage d.c.	....
Total of high voltage direct current			186.0
Grand Trunk	4.0	Single-phase	....
Erie	40.0	Single-phase	....
N. Y., N. H. and H.	490.4	Single-phase	....
Total of single-phase			534.4
Great Northern	6.0	Three-phase	....
Total of three-phase			6.0
Grand total			1645.3
Lines Approved for Electrification.			
Pennsylvania	90*	Not decided	....
Norfolk and Western	75	Not decided	....
Denver, Rio Grande and Western	114	Not decided	....
Chicago, Milwaukee and Puget Sound	440	Not decided	....
Great Northern	530	Not decided	....
Grand total			1249

*Paoli electrification, mileage approximate.

An analysis of the sections of the country electrified by the various systems included in the above total shows that to a large extent the work of electrification has been confined to mountain divisions where there are very heavy grades and severe operating conditions, with cheap water power or low grade fuels. In addition, a large amount of electrification has been undertaken in connection with vast terminal projects or the handling of heavy suburban business. Thus beginning from the two extremes, where the most severe operating conditions are encountered, the work of electrification is gradually expanding so that a larger and larger proportion of the entire system is coming under its sway. The day is far distant, however, when even a single system will be entirely operated with electricity. Many important questions, such as that of a system of power distribution, have yet to be worked out. In the above table it will be seen that there is a wide divergence in the practices of the different systems, and it will require some time to work out the economic limitations of each system in connection with heavy transportation work.

The same issue of the "Electric Railway Journal" contains an interesting article on the maintenance of the electrified section of the Erie Railroad—a part of the Rochester Division, including the line between Rochester and Mount Morris. This line is in many ways similar to the modern interurban road, it being operated with an overhead catenary construction, with a trolley voltage of 11,000, using single phase current. In large part, the cars are run as single units, and in general the system partakes more of the nature of a trolley road than of an ordinary steam road electrified.

Additional Details Concerning Norfolk & Western Plans.

THE main outlines of the plan of electrification now under preparation for the Norfolk and Western Railway were outlined in the June issue of the "Railway World." Additional details concerning these plans are now available. It is reported that the electrification was designed for the handling of coal trains, passenger trains being handled through the electric zone by steam locomotives. The heavy coal business originates west of the summit of the Alleghenies and is in large part hauled eastward over grades of from 1.5 per cent to two per cent. The coal trains originating on the division are at present filled out generally to a weight of 3250 tons from the various workings along the line and hauled over the grades at a speed of about 7½ m. p. h. by three Mallet engines, one at the head of the train and two pushing. The Mallet engine equipment is used locally on this division, and under electric operations these engines will be displaced by electric locomotives, allowing the Mallets to be used on the other regular divisions of the road.

It is not the intention at present to conduct the through merchandise freight or passenger service by electricity, the electric service being confined to traffic designated as "tonnage trains" originating on the electrified section. These tonnage trains of 3250 tons will be electrically operated by head engines and pushers at a speed of about thirteen miles per hour up the heaviest grades. The number of trains handled up the grade will be about twenty per day, comprising a daily tonnage of 65,000, but the design of electrical equipment will be such that this tonnage can be progressively increased in the future as the occasion requires.

Electric power will be generated in a steam power house to be erected by the company at Bluestone, which is on the line of the railway, about one-third the way from Bluefield to Vivian. This power house will have an installed capacity at present of 24,000 kw. All work is to be completed for service in the summer of 1914.

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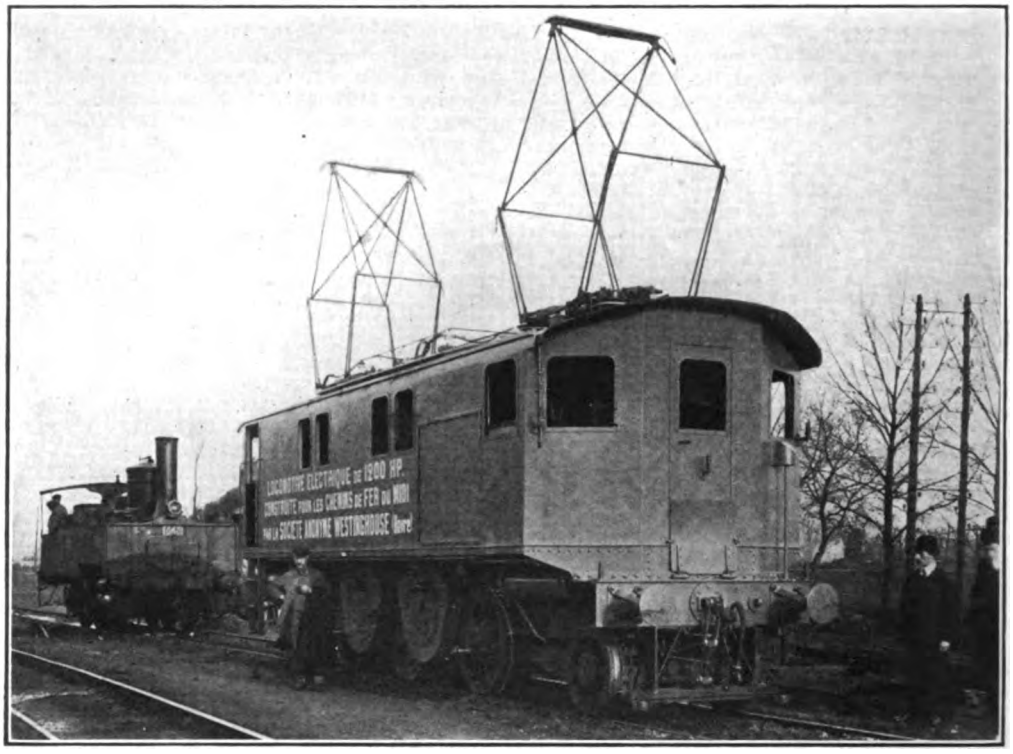
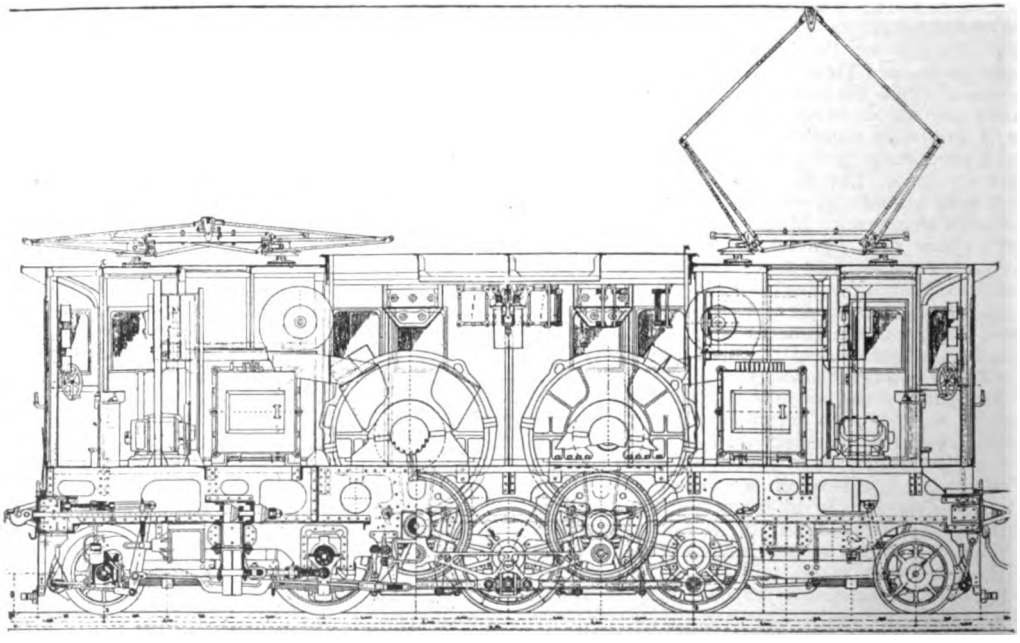
Electric Locomotives on the French Midi Railway

THE accompanying illustration shows the design of a 1,200 horsepower electric engine built by the Societe Anonyme Westinghouse at Havre, France, for the French Midi Railway. The total wheel base is eight meters while the rigid wheel base measures four meters



FRENCH ELECTRIC LOCOMOTIVE WITH TOTAL WEIGHT OF 81 TONS.



SIDE ELEVATION OF FRENCH ELECTRIC LOCOMOTIVE.

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and the diameter of the driving wheels, 1,200 millimeters. The total weight is 81 tons, of which the mechanical equipment weighs 38 tons and the electrical equipment 43 tons. The electro-pneumatic system of multiple control is utilized, and the regulating step down transformers permit a lowering of the line pressure from 12,000 volts with a frequency of 16 2-3 periods to the lower voltages at which the electric motors are operated.

The maximum tractive effort of the locomotive is 12,500 kilograms, and at 8,000 kilograms a speed of 42 kilometers is attained, this being increased to 60 kilometers per hour with a tractive effort of 4,200 kilograms, the locomotive being able to haul trains of 100 tons, 280 tons and 400 tons on grades of 1.7 per cent, the speed varying in proportion to the tonnage of the train.

The maximum speed for which this locomotive was designed for regular service is 75 kilometers per hour. The overall dimension of the engine are of interest. It has a total length of 11,370 millimeters (11.3 meters) the height to the top of the cab being 3,855 millimeters (3.85 meters) and the width of the cab 3,050 millimeters (3.05 meters).

One of the questions which received great attention in the construction of these locomotives was the method of transmitting the power generated by the motors to the driving wheels, as opinions differed as to whether the motors should be of the geared type, or whether they should be built for comparatively slow speeds, and driving the wheels by means of rods. The French Thomson-Houston Company decided upon the latter scheme using two slow speed motors having cranks at each end of their shafts. The connecting rods coupled these cranks to the auxiliary shafts placed on the same plane as the wheel axles and from these auxiliary shafts the power is transmitted to the six driving wheels by horizontal side rods. The motors are placed close to the center of the locomotive and the connecting rods are inclined at the greatest possible angle.

Governor Sulzer Vetoes Hydro-Electric Bills.

GOVERNOR SULZER, of New York, on May 28th, vetoed the Murtaugh hydro-electric bill designed to permit the utilization of the surplus waters of the canals of the city for the development of electric power, and the Walters bill which would have permitted quasi-public corporations to impound waters through the use of dikes, watersheds and other structures and to market the power.

The Governor says that while he is in sympathy with the purposes sought to be accomplished by the Murtaugh bill, whose principal sponsor was Lieutenant-Governor Martin H. Glynn, yet he questions the wisdom of some of its provisions and the selection of Vischer's Ferry on the Mohawk River as a site for the development of the power. He points out that the friends of the Barge Canal opposed the plan because they believed it would cripple the efficiency of the new canal.

"Experts are all in accord," says the Governor, "that the greatest natural undeveloped water power in this country is the Long Sault, along the St. Lawrence, on the northern frontier of the State of New York. The water power here is tremendous and the uniformity of volume, during all the seasons of the year, unsurpassed, for the reason that the Great Lakes, the largest body of fresh water in the world, form an unparalled natural reservoir."

The Governor characterized the Walters measure as "a mischievous bill and calculated to do much harm." He says: "the extraordinary powers conferred, so far as I know, are without legislative precedent."

New Haven's New Electrical Repair Shop.

A NEW electrical repair shop designed to handle all of the now extensive electrical equipment of the New York, New Haven & Hartford Railroad, costing $650,000 and covering two acres of ground, is nearing completion in Van Nest, Bronx Borough, New York City. It is expected that it will be in operation by August 1st, or a short time before the electrification of the road from Stamford to New Haven is finished.

The electrical equipment of the New Haven road is assuming large proportions, it having a total of 99 electric locomotives and 23 multiple-unit motor cars. Forty-seven of the locomotives are used in the passenger service, 36 for freight and 16 as switches. The freight engines are 50 feet long and weigh 150 tons. They have four drivers on a side, and these are driven by eight motors. They will exert a maximum tractive effort of 40,000 tons and will haul a 1,500-ton freight train at a maximum speed of 35 miles an hour.

Terminal Improvements

The Relocation of Chicago Railway Terminals.

THE Chicago Plan Commission, at a hearing on May 24th, proposed a new plan for the relocation and co-ordination of the railway freight and passenger terminal system of Chicago, to the City Council Committee on Railway Terminals. The plan proposed follows in a general way the scheme prepared several years ago under the title "The Plan of Chicago" by a committee of the Commercial Club. The plan is based mainly on the idea of Mr. F. A. Delano, president of the Wabash, for a series of terminals on Twelfth streeet and the proposals of the original plan of Chicago prepared by Mr. D. H. Burnham. According to the proposed plan for passenger terminals, the Illinois Central- Michigan Central group will occupy their present station. The Western Indiana or Polk Street station group, consisting of the Wabash, Grand Trunk, Santa Fe, Monon, Chicago and Eastern Illinois, Chesapeake and Ohio, and Erie will be united with the Rock Island-New York Central lines or La Salle Street Station group, to occupy the large terminals centering on Clark street. The Union Terminal group, consisting of the Pennsylvania, Burlington, Alton and St. Paul railroads, will receive the Baltimore and Ohio or Harrison Street Station group and occupy the terminal between the river and Canal street. All of these groups will be located upon Twelfth street, which will start from Michigan Avenue and continue to the river.

The general outline of the plan is shown clearly in the accompanying illustration. It will be noted

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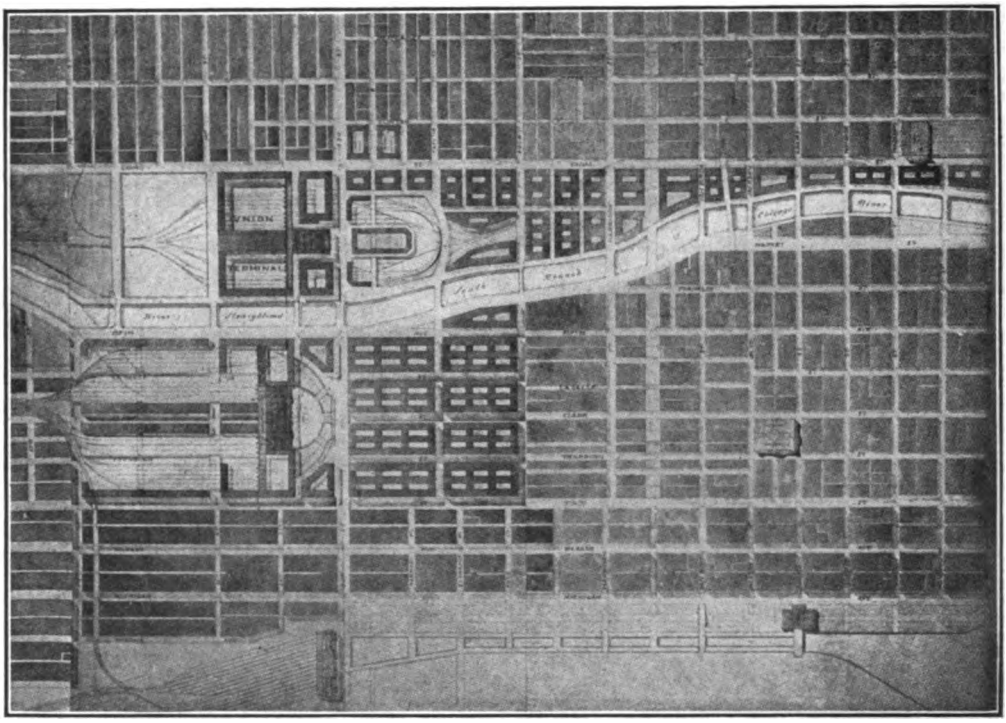

PROPOSED THREE-UNIT PLAN OF PASSENGER TRMINALS AT CHICAGO.

that the freight terminals are to be located north of twelfth street upon such property as is not taken for passenger terminals and such of the station area as can be built over after the electrification has been accomplished. An extensive system of warehouse blocks will be provided east of the river on the area owned by the railroads.

The suburban traffic is to be handled in the Union Terminal west of the river and in the Twelfth Street Station, the idea being to bring these lines as closely in touch as possible with the business district and at the same time prevent undue congestion.

Mr. F. A. Delano, of the Wabash, addressed the committee at the meeting on May 24th, stating that many of the features of the Pennsylvania's plan submitted on that date were bad in that they tended toward a restriction of the business district instead of providing for its expansion. He advocated no particular plan and admitted that there were many difficulties in the way of getting all of the roads to agree on a general scheme. He proposed that the final decision be postponed for a few months to allow the various railroad companies to make a conscientius effort to work out a plan satisfactory to all. The plan proposed by the Pennsylvania contemplates an architecturally attractive head house facing on Van Buren street, and warehouse buildings occupying the block from Van Buren to Harrison Street, with loading and unloading platforms on the block south of Harrison street between Jefferson and Desplaines streets.

This plan was endorsed by the Chicago Real Estate Board by a vote of 95 to 10, and has been approved as well by a number of other organizations. On the other hand, a large number of influential organizations, such as the Chicago Building Trades Council, have endorsed the Union Station plan. An enabling act to provide for the incorporation of a holding company to construct the Union Station with a capitalization not to exceed $50,000,000, was passed by the Illinois Legislature on May 22d. At the present time, three ordinances are before the City Council in behalf of the Union Station project to provide for the necessary street and alley changes in connection with the proposed terminal plan.

Railway Shops of the Canadian Pacific at Ogden, Alberta

THE Canadian Pacific Railway has recently put in operation near Calgary, Alberta Province, Canada, a large shop plant of more than ordinary interest by reason of its size, its complete and modern character and the speed with which it was created.

The work was designed and built in its entirety by Westinghouse, Church, Kerr & Co., consulting and constructing engineers, of Montreal and New York, working under the direction of Mr. J. G. Sullivan, chief engineer of the Western Lines of the Canadian Pacific Railway, and Mr. N. E. Brooks, division engineer.

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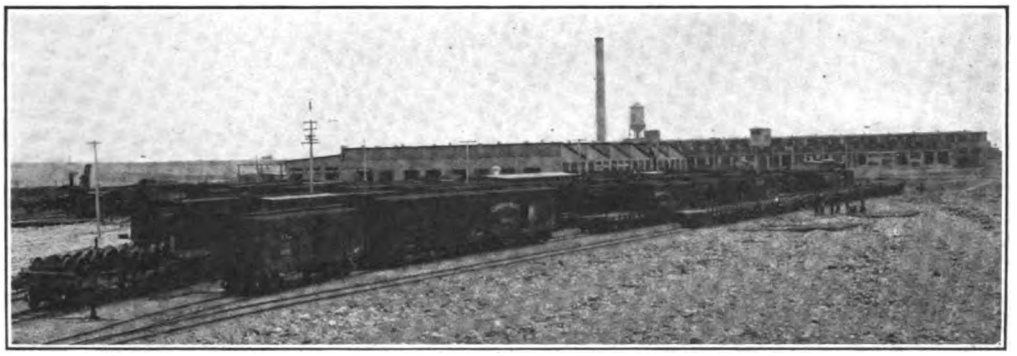
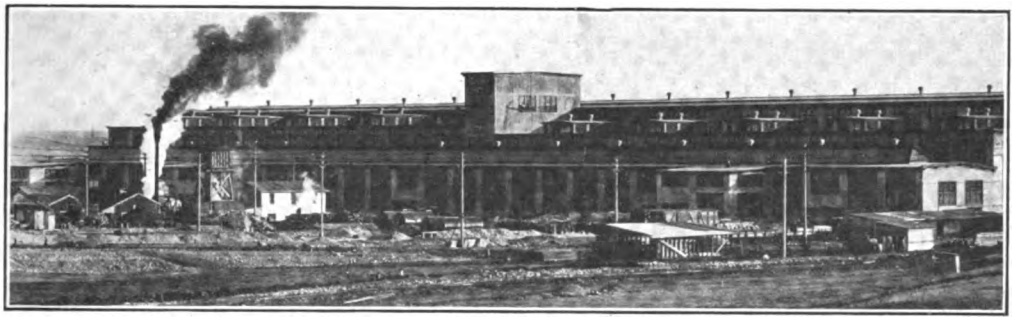


GENERAL VIEW OF CANADIAN PACIFIC RAILWAY SHOPS AT OGDEN.

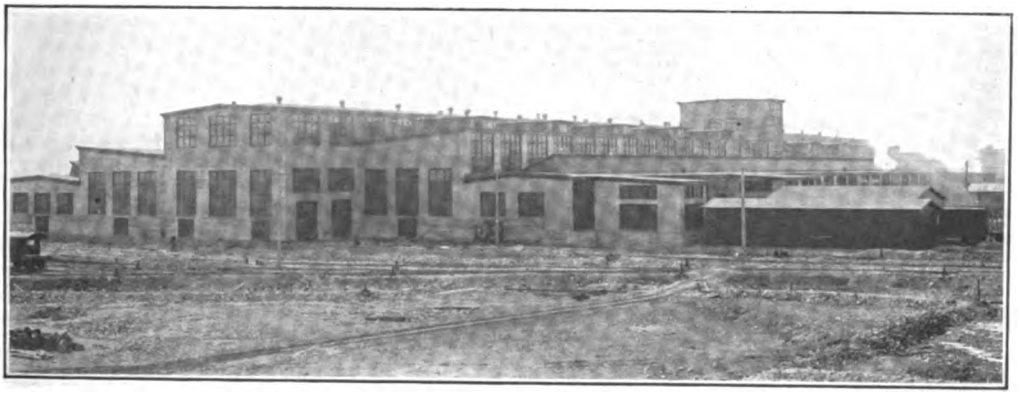
The shop location is at Ogden (named in honor of a vice-president of the railway) and is 4½ miles from Calgary and about 2,250 miles from Montreal. Its distance from those sections of the country where the greater part of the construction materials, machinery and equipment were produced constituted the first and one of the most important problems. A second important problem arose on account of the construction season being extremly short, owing to the high latitude, frost remaining in the ground until about April 1st and returning with snow as early as October first. A third very important problem was the comparative scarcity of labor in the Canadian Northwest, this condition being greatly aggravated during the late summer months when harvesting begins and all labor markets are practically drained of men.

Plans had, therefore, to be drawn, materials ordered, deliveries made and complete field organization perfected so that the shops could be closed in between April 1st and December 1st, and sufficiently heated so that inside work could be continued after cold weather had set in.



MAIN BUILDING FROM WEST, SHOWING BLACKSMITH AND BOILER SHOP LAYS.

The shops consist in general of: Main locomotive shop (including erecting, machine, blacksmith and boiler shops), tender and wheel shop, pattern shop and pattern storage, foundry, storehouse and office building, material platforms and scrap dock, oil house, coach repair and paint



NORTHWESTERN VIEW, SHOWING ROOF ARRANGEMENT WITH REFERENCE TO LIGHTING OF ERECTING AND MACHINE SHOPS.

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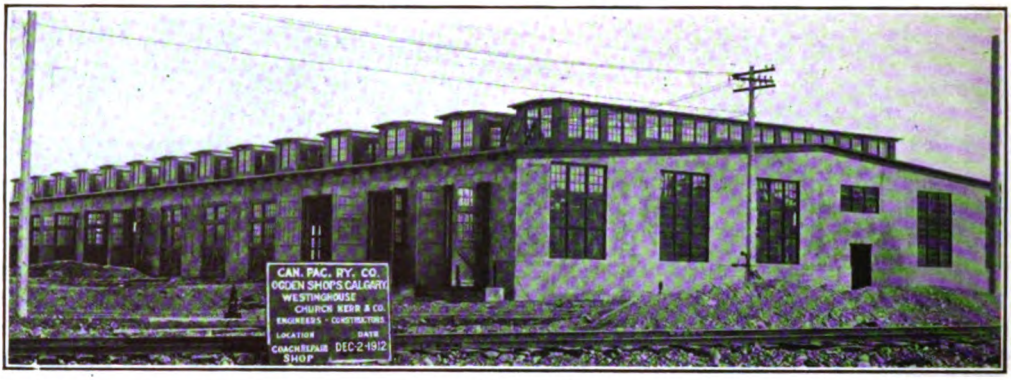


COACH REPAIR SHOP.

shop, freight car repair shop, planing mill, boiler and compressor house, 1,260 ft. yard-crane, miscellaneous structures, including transfer table and pit for coach shop, mess hall, driven wells and water tower, all service systems such as drainage, sewage, fire protection, water supply, etc.

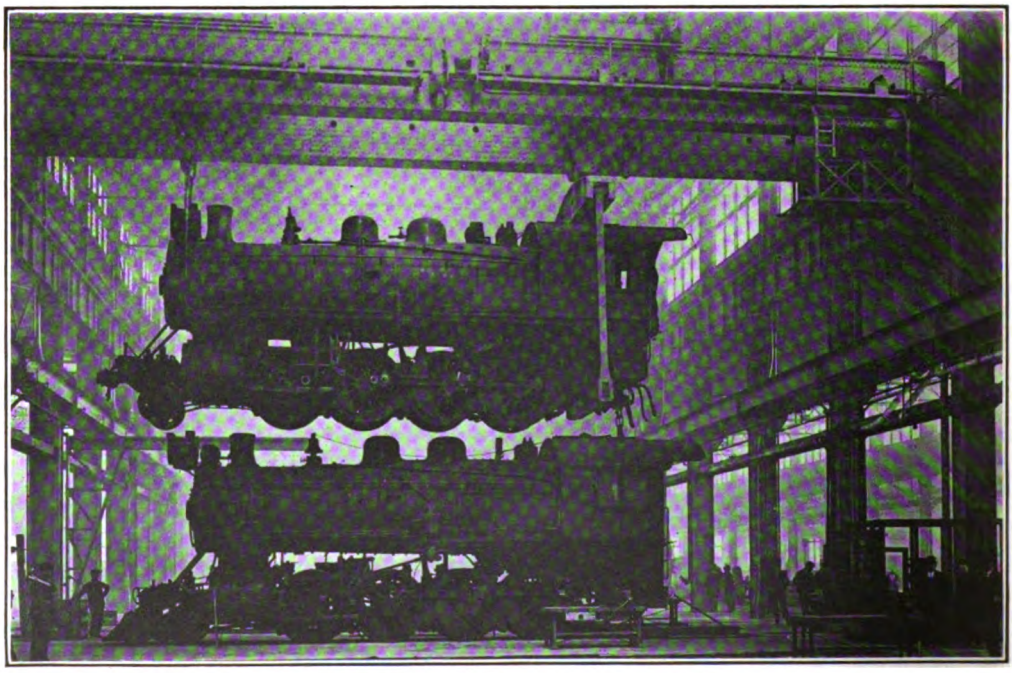
Space does not permit of a detailed description of the various shops and buildings which comprise this modern plant, but a description of the main locomotive shop is of particular interest, in as much as many of its features represent the latest improvements in locomotive shop construction and equipment. This building is designed to contain the erecting shop, machine shop, blacksmith shop and boiler shop.

The erecting shop is of the transverse lift-over type, contains 35 bays, each 22 feet between centers and is 778 feet long by 75 feet wide. The entire area is served by two traveling electric cranes, carried on two levels. A 120-ton crane, furnished with two 60-ton trolleys is carried on the upper level and is used for transferring, wheeling and unwheeling locomotives and handling parts. One of the trolleys on this crane is equipped with a ten-ton auxiliary hoist for handling light material at a high hoisting speed.

Another ten-ton traveling electric crane operates at high speed and serves the entire area of the erecting shop, for handling material in that shop and transferring same to the blacksmith shop and machine shop. The machine shop and the boiler shop are located in adjacent bays on either side of the erecting shop.

Provision is made on the crane columns in the erecting shop for attaching portable jib cranes for use in dismantling and erecting material on the front ends of locomotives. These cranes are placed where desired by means of the overhead traveling electric cranes.

Entrance for locomotives to the erecting shop is provided through four doors, located in the



INTERIOR OF LOCOMOTIVE SHOP, SHOWING 120 TON LOCOMOTIVE CRANE.

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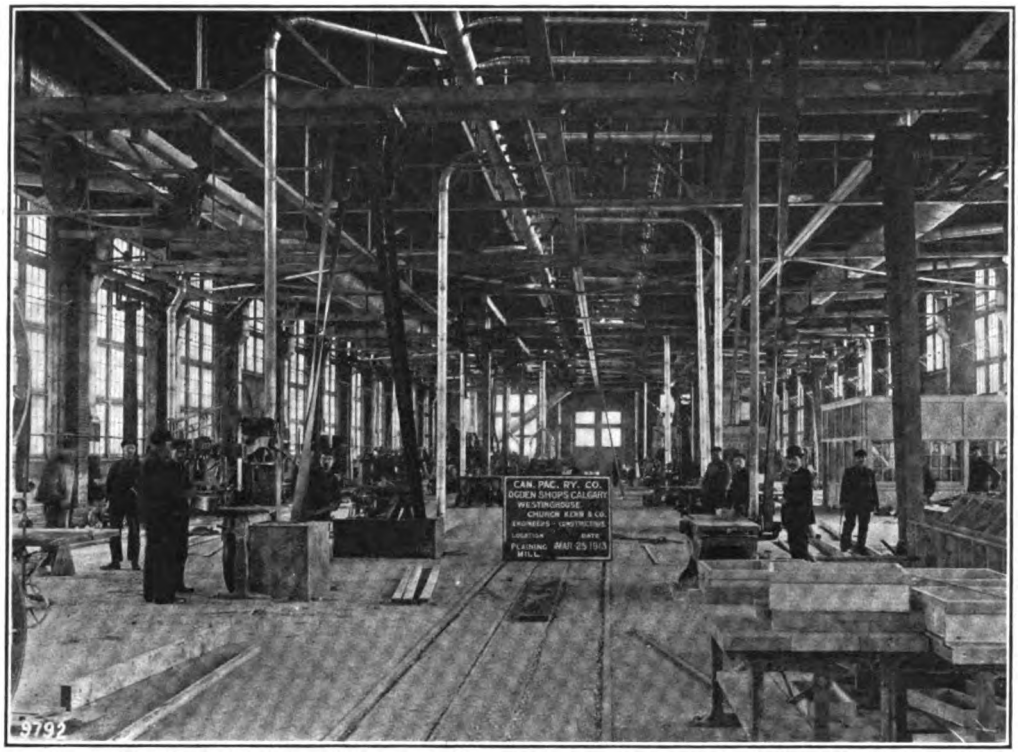

INTERIOR OF PLANING MILL.

west side of the shop, two of these doors being located at either end.

For providing additional means for entrance of locomotives, six door openings are provided in the east wall of the machine shop, two of these being at the north end and four at the south end.

All of these entrance tracks are connected up with the erecting pits of the several stalls where they enter the building, to permit of the locomotives moving into and out of the shop through these entrances should this movement become desirable or necessary.

The machine shop for heavy machine tools is located parallel with and adjoining the erecting shop on one side and is 60 feet 9 inches wide and the same length as the erecting shop. A high speed traveling crane of ten-ton capacity covers the entire area of this shop. Material can be brought into the shop through a door provided in the end of the building, the material being brought up to the end of the machine shop by the traveling electric yard crane which travels across the end and outside of the locomotive shop.

Space for the lighter machine tools is provided in a shop 60 feet 9 inches wide parallel with and alongside of the heavy machine and of the same length as that shop. An overhead trolley beam is provided on the bottom chord of the roof truss to permit of using a traveling electric trolley for handling material longitudinally in this shop. Provision has been made for a foreman's office elevated above the floor and having liberal glass surface in the walls so as to give the best possible view of the shop.

The blacksmith shop is located alongside of and parallel with the erecting shop on the opposite side from the machine shop. This building consists of two bays each 332 feet long, 60 feet 9 inches and 50 feet wide respectively.

Space is provided for heavy forging work, steam hammers, etc., in the building immediately adjoining the erecting shop.

The blacksmith shop will not be served by a traveling crane but provision has been made for jib cranes to handle the material from steam hammers, forgings, etc.

In a building of lower cross-section alongside are located the furnaces, bolt headers and other blacksmith shop machinery. This portion of the shop is served by a trolley its full length to facilitate the longitudinal movement of material through the shop.

The space for the boiler shop is provided in a two-bay building, alongside of and parallel with the erecting shop at the end of the blacksmith shop, 352 feet long and the same width as the latter shop.

That part of the boiler shop immediately adjoining the erecting shop is provided with a 40-ton traveling electric crane equipped with two 20-ton trolleys serving the entire area of the boiler shop for handling the boilers and other material.

The riveting tower is located between two of the roof trusses in the end of the boiler shop, with a 25-ton crane for serving the hydraulic riveter.

In the outer of the two bays of the boiler shop, space is provided for a flue shop and boiler shop tools. The entire length of this space is served by a three-ton overhead traveling trolley for

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handling material through the shop. Space for a flue rattler is provided immediately outside of and adjacent to the low bay of the boiler shop.

An entrance track is provided through the outside wall of the boiler shop on which boilers or other equipment going to this department can be delivered on cars under the traveling crane, for unloading, or may be loaded out for shipment in the same way. This facilitates the handling of boilers from steam shovels, pile drivers, lidgerwoods, etc.

Jib cranes are provided for serving the individual machines in the boiler shop where such service may be necessary.

The heating throughout is done by indirect fan system. For distributing the heated air, underground concrete and tile ducts are used.

The general illumination consists of Cooper-Hewitt lamps with circuit and plug boxes for extension loop cords. Provision has also been made for incandescent lighting circuits for individual lighting at machine tools where required, and for outlet boxes for connecting extension lamp cords to provide lighting for the interior of the locomotive boilers on the erecting floor.

Toilets, lavatories, and metal lockers are provided in the various departments of this shop.

A suitable system of piping is provided for distributing live steam, compressed air, full oil and water for fire protection, drinking and hydraulic pressure.

Outlets for compressed air are provided in duplicate in the sides of each of the engine pits to supply compressed air for operating pneumatic tools.

In the main locomotive shop the electrical feeders from the power company transmission lines are carried in underground ducts, bringing the current at the voltage delivered by the power company, namely, 2,200 volts, to a sub-station located adjacent to and immediately outside of the low machine bay, the transformers for stepping down to 440 volts being located in this sub-station. In this sub-station two motor generator sets for supplying direct current are also located. The switchboard is also located in this sub-station for controlling the power and lighting circuits in the machine shop and for the tender shop and foundry. As far as possible distributing feeders are carried in conduit beneath the shop floor, thereby minimizing the amount of exposed wiring in the shops.

The building containing all of the above departments of the locomotve shop is constructed with structural steel frame carried on concrete foundations. The exterior walls up to the window-sill line are of concrete, above the window sills of hollow-tile plastered.

Ample window area is provided in the side walls and in roof monitors and skylights so as to give sufficient natural lighting.

Good ventilation is obtained through ventilators in the monitors and skylights and by the use of swinging sash in the vertical walls.

With the exception of the blacksmith shop and a portion of the boiler shop the floor throughout is constructed with a 1½ inch asphalt mastic wearing surface which is underlaid with a rough concrete slab about six inches thick. In the blacksmith shop and a portion of the boiler shop the floor is of cinders.

The roof sheathing is constructed of 2x4's, surfaced on one side and one edge and spiked together on edge, thus affording good fire resistance qualities and materially reducing the heat losses. The roof water-proofing is four-ply tarred felt, pitch and gravel, with copper flashing. Suitable drain leaders are provided and connected into underground tiled drains to carry off the water from the roof.

The large skylight on the erecting shop bay is of steel bars lead covered with ribbed wired glass.

For obtaining water for shop purposes there have been put down two eight-inch wells equipped with electrically operated pumps. To supplement this supply and to provide a main source of supply for fire protection the city of Calgary has brought down into the shop site to a point midway the length of the main shop building on the west side, a ten-inch cast iron water main. The shop service and fire lines are connected onto this main and into a steel tank of 125,000 gallons capacity, which is erected on a 70-ft. steel tower, principally for use in connection with automatic sprinklers in the various buildings where these are installed. A complete fire protection system has been put in with hydrants distributed about the shop yard.

The sewage system in the shop yard is divided into the sanitary and storm sewers. The city of Calgary is furnishing the main sanitary sewer, beginning at the east line of the freight car shop and extending to the eastern boundary of the shop property. All the sanitary sewage lines from the various buildings are connected into this sewer. Storm sewers are provided where necessary to carry off the roof water from the buildings where the roof construction is such that this cannot be discharged onto the ground.

The location of the shops is about four and one-half miles east of Calgary, practically on the open prairie and on the beginning of construction arrangements had to be made to house and board on the shop property a considerable quantity of labor. To this end, frame bunk houses were built with two tiers of bunks on each side of the building, eight bunks long, each house having a capacity of thirty-two men. Stoves were placed in the center aisle and benches along the sides of the lower tier of bunks. On the coming of summer and as the labor forces were increased some of the men were housed in standard 12 x 14 wall tents which accommodated four men each. A large mess room and kitchen and storeroom space was also fitted up with a capacity of feeding about 400 men at one time. Great care was exercised throughout the work in keeping the camp in a sanitary condition.

Proposed Terminal Improvements at Baltimore.

PRESIDENT REA, of the Pennsylvania Railroad has recently made public, general plans for terminal improvements at Baltimore, which his company proposes to make, providing it procures the permission of the city government, and which will entail an expenditure of approximately $10,000,000. They include the acquisition of property and construction work at the Calvert Street Terminal and Bayview and Canton. As the following drawing indicates, the improvements contemplate additional main tracks and facilities for handling through traffic, a four-track connection between Union

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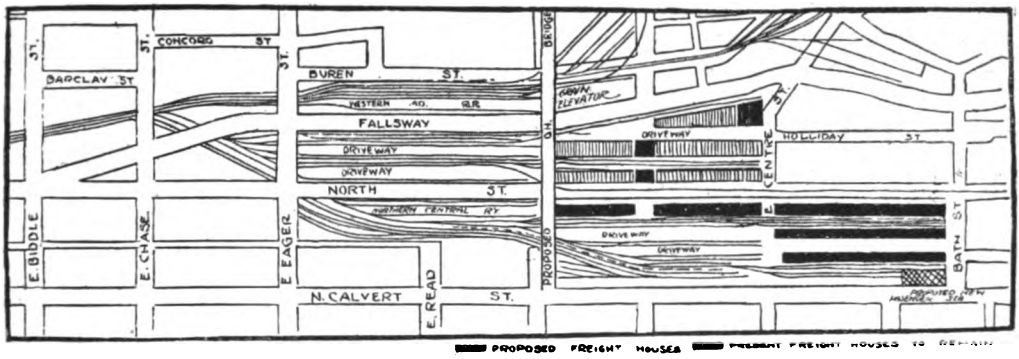

DIAGRAM OF PROPOSED PENNSYLVANIA RAILROAD IMPROVEMENTS AT BALTIMORE.

Station and the Calvert Street Terminal, the southern most point of which is to be at Bath Street. The abandonment of Calvert Station for passenger service or the establishment of a passenger station on the second floor of the terminal at Bath Street, to be reached by passenger trains on an elevated structure above the freight tracks. Enlargement of freight sheds and building of new warehouses at the Calvert Street Terminal.

In order to carry out these plans the railway company asks that the city deed it certain portions of the bed of Madison Street, leaving, however, a driveway on the north side between Constitution Street and Buren Street at the present grade and a driveway on the north side of Madison Street from Calvert Street east to the railroad company's right of way. It also desires a portion of Reed Street, Davis Street, Holliday Street, Franklin Street, Bell Alley and Courtney Alley.

The improvements contemplate the construction of an overhead bridge fifty feet in width, on the southerly side of Madison Street, extending over Calvert Street to Constitution Street, which will avoid all grade crossings of railroad tracks. The proposed bridge will pass under Guilford Avenue Electric Railway viaduct, with an overhead clearance of thirteen feet.

The shaded rectangular blocks shown in the above sketch on Calvert, Bath and North streets, indicate the location of the proposed new freight sheds; there are seven of them. The rectangles with crossed lines indicate the present sheds. At the corner of Bath and Calvert streets, is shown where the new Calvert Station is to be located, if the city insists upon the down-town station. If this is not insisted upon, the down-town station will be eliminated. The proposed overhead bridge on Madison Street is outlined, as is also the arrangement of the tracks. The plans as a whole, constitute the most elaborate railway improvements ever devised for the City of Baltimore.

New Freight Interchange Yards for St. Paul.

OFFICIALS of the Chicago, Milwaukee and St. Paul, have announced that the new freight interchange yards at Godrey, Ill., will be opened for the handling of inbound and outbound traffic within the next six weeks. This addition to the facilities will represent an outlay of several million dollars and will result in a large volume of freight interchange being transferred to the outskirts of the city. The yards, which are three miles long and one-fourth mile wide, extend from Mannheim to Bensonville. Construction work was begun four years ago and sufficient progress was made to enable the company to use the yards for the storage of freight cars during the past two years. Within the last year the company has constructed a roundhouse, machine shop and carpenter shop on the premises.

Baltimore & Ohio's New Tie Treating Plant.

THE Baltimore and Ohio has just completed and put in operation one of the most complete and modern timber-treating plants in this country. It is located at Green Springs, W. Va., and covers sixty acres of ground close to the large timber area along the South Branch Valley of the Potomac River.

The Baltimore and Ohio system requires approximately 2,500,000 ties annually for renewals. A large proportion of these, with other timber for railroad use, will be treated at the new plant. Practically all of the ties now being treated are of oak, approximately about 200,000.

The Alton's Bloomington Shops.

THE Chicago & Alton will soon begin work on the shops at Bloomington, Ill. The Commercial Club there has obtained the land which is to be furnished for this improvement and laborers are expected to start work for the contractors at once. The first work will be on the machine shop, which will be 600 feet in length and will cost more than $500,000.

The Alton has also authorized the construction of a new switching yard with a capacity of 3,700 cars, to be located on the main line at Glenn, Ill. The plans include provisions for constructing an engine terminal, including roundhouses, cinder pits and coaling station.

This is the development of work started two years ago, when tracks with a capacity of about 1,000 cars were built. The yard is intended to relieve the Brighton Park yard, five miles nearer the city.

New Haven's Improvements at Hartford.

THE New Haven system has completed its purchase of land for the increase of trackage of the Canton Street freight yards at Hartford, Conn., and will extensively enlarge this yard for the working out of its new plan of making up freight trains which is expected to considerably hasten delivery at destination. Freight trains are to be made up sys-

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tematically, cars being added in the order in which they will be dropped off at destination, and this requires greater track facilities.

New Terminal for Dallas, Texas.

PLANS for the interurban terminal station to be built by Stone and Webster, at Dallas, Texas, at a total cost of $2,000,000, have been announced and provide for one of the finest terminals in the southwest.

The building and trackage will occupy an entire city block, the building will be nine stories high, with an immense basement, and there are to be twelve tracks in the train shed. The building will have an aggregate floor space of 155,000 square feet and the train sheds can house thirty-five trains at one time.

All of the Interurban lines now running into Dallas and those which are to be built in the future are expected to use the terminals.

Pennsylvania to Elevate Tracks at Chicago.

TWO million dollars will be expended by the Pennsylvania Company in elevating its tracks in the City of Chicago. The improvement will be completed gradually, as the city council has granted the company seven years to finish the work. One of the largest subways in the city is now being built at West Fifty-ninth Street. It will be 66 feet wide, 650 feet long and have a capacity for forty-six tracks.

Mayor Harrison, has also written letters to the Pennsylvania, Lake Shore and Michigan Southern, urging them to build a subway under their tracks at Seventy-ninth Street.

Station Building in Canada.

CONTRACTS have been awarded by the Canadian Pacific for one hundred and eighty station buildings to be erected along its new line from Montreal to Toronto.

Soo Line Terminal.

THE Soo Line is now employed in excavation work and laying the foundation for an immense freight house and office building at Chicago. The site was acquired at a cost of more than $2,000,000. The ground floor will be used for warehousing purposes and on the three upper floors the receipt and distribution of inbound and outbound freight will be handled.

Interstate Commerce Commission

Commission to Investigate Eastern Rate Situation.

AS discussed more fully in another section of this issue, the Commission, instead of permitting the carriers to re-open the Eastern advance rate cases of two years ago, have intimated that it is their intention to conduct an independent investigation concerning the Eastern rate situation, and hearings for this purpose will probably begin some time in October. Both shippers and railroad officials will be permitted to testify fully, and should the Commission be impressed with the case presented by the railways, it is likely that they will order some general rate readjustment in this territory.

Daniel Willard, President of the Baltimore and Ohio Railroad, in discussing the attitude of the Commission said:

"I am gratified by the action taken because it affords the railroads and the public an opportunity to be heard on the question and I feel confident that the railroads will be able to furnish such evidence as will satisfy the Commission of their necessities. If they do, I believe the Commission will have no hesitancy in giving their approval to such increases in rates as under the circumstances may appear to them reasonable. From the standpoint of the railroads, therefore, I think the reply of the Commission, as we understand it, is entirely satisfactory. The Commission says that being of the opinion from a consideration of the facts in that petition, as well as some other facts within its knowledge, the subject should be at the 'present' time further examined; but that such examination can 'best' be conducted in a proceeding instituted by the Commission in order that they may determine:

"First—as to whether the rates of transportation now in effect in official classification territory yield an adequate return; and

"Second—if not, what plan shall be adopted to increase such transportation charges?

"This is exactly what we are anxious to have done. If the claims of the railroads are well founded, it will be disclosed by the inquiry and if it is ascertained that they do need additional revenue, it appears to be the purpose of the Commission to give consideration to the matter in which such increased revenues can best be obtained. In other words, the carriers are given an opportunity to prove their case and if they do the Commission will give consideration to the best method of securing the necessary increased revenue. Certainly the railroads could not expect more from the Commission at this time and there has been no reason to doubt at any time that they could get less."

While the Commission later cancelled this order to which Mr. Willard refers, it is believed that this was done more on account of its premature issuance, than because of any radical change in the final order which the Commission intimated will be issued shortly.

Boston Loses Differential Rate Case.

AS commented on elsewhere, a supplemental opinion has been issued by the Commission in the so-called Import Differential Rate Case, which sustains the Commission's original decision in this matter. The original case involved an adjustment of rates on import traffic among the cities of Boston, New York, Philadelphia and Baltimore.

In the original report, which the Commission confirms, it was held that the import rates from Boston should not be lower than from New York. In a supplemental report it was held that

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via certain differential routes on domestic traffic, the import rates need not be higher than the domestic rates for the reason that such an adjustment would simply impose upon shippers the necessity of clearing their import shipments at Boston in order to ship them under the lower domestic rates.

Commission Requires Expert Assistants.

WITH the gigantic task ahead of it of appraising the physical property of the country's railways, the Commission is making an effort to procure the assistance of a large number of railway experts. Through the Civil Service Commission, dates have been set for the examination of men acquainted with railroad operation and construction, and who aspire to enter the service of the Government.

The Commission wants a large staff of structural, electrical, mechanical, railway-signal, and civil engineers, inspectors of car equipment and motive power, and architects. The salaries will range from $1,080, the lowest, to $4,800, but as the work will be mainly done away from Washington, expenses will be allowed while on duty.

The Civil Service Commissioners expect a general response to its call and has fixed July 21st as the closing date on which applications will be received by it.

Future of Express Companies.

IT is apparent that the future of the express companies still rests largely with the Commission and will until it hands down its final rate decree. The parcel post is not likely to affect the total business of the companies more than approximately six per cent, provided it is kept within its present weight and size limits. This represents a loss in the small package business, of approximately forty per cent, which, it is believed, will not be exceeded. Should the service of the parcel post be expanded to include packages weighing up to 100 pounds, the situation would be radically changed, but Government experts seem to agree, at least for the present, that the service under such expansion would be made too cumbersome for shippers to avail themselves of it. Furthermore, it is estimated, that under present conditions, the parcel post service is already being operated at a deficit and it is not likely that the Government will find it expedient to increase this burden.

Rulings on Ocean Freight.

TWO important conference rulings involving ocean freight have been announced by the Commission. Concerning the payment by rail carriers of advance charges on import traffic, the Commission said:

"A rail carrier may not advance charges to an ocean carrier on import traffic, except under a proper provision therefor in its tariffs. When such advance charges are made the freight bill of the rail line must show in separate items the charges so advanced and the charges of the inland carrier or carriers; it must also show the tariff rate or rates of the inland carrier or carriers. The name of the ocean carrier to which the charges are advanced must also be shown.

"To give carriers time in which to adjust their tariffs in conformity herewith this ruling will become effective on August 15, 1913."

The other ruling was announced as follows:

"The Commission holds that it has jurisdiction over shipments moving under tariff recently filed by the Pacific Mail Steamship Company naming proportional commodity rates from San Francisco to Honolulu on traffic moving under through bills of lading and originating at inland points in the United States and moving from such inland points to the port of San Francisco under tariffs filed with the Commission."

Reparation Demanded on Account of New York Strike.

THE National League of Commission Merchants, with headquarters at New York City, have demanded, through the Commission, over $13,000 in reparation from the Pennsylvania Railroad, on account of the strike of freight handlers which occurred in that city from July 10th to 21st, 1912. It is claimed that during that period large shipments of peaches and cantaloupes were prevented from delivery at New York City piers, and that the consignees were forced, at extra expense, to receive these shipments at Jersey City, and from thence haul them to New York. It is largely on account of this hauling expense, that the claims for reparation are made.

Rate Decisions.

THE reduction of ore and coke rates in the Pittsburgh district constitute the most important rate decisions of the month. The Commission ordered a reduction in the rates of iron ore from the Lake Erie ports to the Pittsburgh district in Pennsylvania, and on coke from the Connellsville producing region for any destination East and West.

On iron ore from Lake Erie ports to the Pittsburgh district the Commission orders a reduction of 36 cents a ton or from 96 to 60 cents a ton. On coke the Commission orders a reduction averaging 12 per cent.

The decisions of the Commission are considered the most important handed down by it for a considerable time. The decision of the Commission particularly in the ore case, it is stated, disposes of the defence of the big eastern railroad lines that they have the right to equalize the cost of assembling raw materials at various producing points.

The complaint in this case was brought by the Pittsburgh Steel Company, the largest independent iron and steel producer in the United States, against the Lake Shore & Michigan Southern Railroad Company, the Pittsburgh & Lake Erie Railway Company and others.

In the proceeding the Pittsburgh Steel Company was understood to be considering a test case on behalf of itself and other independent steel companies, and in the evidence it was charged that the rate was maintained by concerted action of the railroads with the purpose and the effect of benefiting the United States Steel Corporation to the disadvantage of the independent steel manufacturers.

The Commission's decision gives the Pittsburgh district the same rate as the Wheeling district, a competing one that is sixty cents a ton.

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In connection with the rates in question and the connection of the United States Steel Corporation the report says that the matter of allowances to the Steel Corporation by railroads and its ownership of them is now under investigation by the Commission and will be reported upon in a separate case and it continues:

"Full consideration has been given this question of improper influence by the United States Steel Corporation, but it does not seem that sinister influence need be assumed to explain the Pittsburgh rate on ore. This rate may, perhaps, be more properly viewed as one illustration of a common practice in railroad rate making, of charging high rates where the traffic can easily be made to bear it."

Other important cases decided, include the following:

Reduction in the rates on window glass, plate glass and roll glass from the Pittsburgh district to High Point, N. C. Reductions in rates on anthracite coal from points in Pennsylvania to Scotia, New York.

Rates on cement from Ada, Okla., to points in Texas, over the Missouri, Kansas and Texas Railroad, declared to be unreasonable. Rates of 22 cents per 100 pounds on petroleum and its products from points in Kansas over the Atchison to points in Nebraska declared unreasonable. Refusal of the Illinois Central to grant elevation allowance on grain at Decatur, held discriminatory in view of such allowance being made at Cairo, Illinois. Rates on bag and bagging cotton bales and ties over the Arkansas, Oklahoma and Western Railroad, held to be unreasonable. Rates on sugar and molasses from certain producing points in Louisiana to Clinton, Ia., held to be reasonable. Rate of 16½ cents on flaxseed products from Minneapolis, St. Paul to Galveston and other Gulf ports held to be unreasonably low, but the Rock Island and other railroads ordered to keep the route open at a rate not to exceed 22½ cents per 100 pounds. Rate of 53 cents per 100 pounds on machines from Saginaw, Michigan, to Milton, Florida, over the Louisville and Nashville, declared unreasonable. Advance of four per cent in fertilizer rates from Wadsboro, S. C., to various local stations in that State, declared unreasonable. Rates on leather from Cincinnati and various other points in the middle west, to Macon, Ga., over the Cincinnati, New Orleans and Texas Pacific, held to be discriminatory to Atlanta, Ga.; the differential on these shipments favoring Atlanta were reduced from 27 cents per 100 pounds in less than carload lots to three cents and from thirteen cents per 100 pounds in carload lots to two cents. Rates on coal from Bego, Wyo., over the Chicago, Burlington and Quincy to Boseman, Mont., of $2.75 a ton, declared unreasonable. Rates on hay and straw from Beloit, Wis., to Chicago over the Chicago Northwestern, held reasonable. Petroleum rates over the Missouri Pacific from Kansas to Arkansas points, declared reasonable. Rates on glazed paper from Chicago and Mississippi River crossings to Omaha over the Chicago Great Western, declared unreasonable.

On petition of the Illinois and Texas grain merchants, the Commission has prescribed that railroads may charge not in excess of ½ cent per 100 pounds over previous existing rates for grain transportation between the two States.

As a result of its investigation of the use of the wharfage facilities at Pensacola, Fla., the Commission holds that:

"Wharves and the tracks leading thereto, owned by a rail carrier engaged in interstate commerce and used for receiving and delivering property moving by rail in interstate and foreign commerce, are subject to the act to regulate commerce and the regulations and practices affecting their use must be reasonable and nondiscriminatory."

Rate Suspensions.

AMONG the suspensions during the month were the following: Increase in freight rates on wheat from various points in Oregon and Middle Western States to destinations in the Southwest, suspended until September 19th. Advance of six per cent in rates over 100 pounds on potatoes and other vegetables from Louisiana and other Arkansas points to Rocky Mountain territory, suspended until September 20th. Advances in rates on cartridge shells from Chicago, St. Louis and other points to Kansas City and other destinations, suspended until November 29th. Increases in lumber rates over Southern Railway points to Eastern cities, suspended until September 27th. Advances in grain rates in carload lots over certain points in Illinois, Iowa and Missouri, to Toronto, Ont., suspended until July 8th. Advances in rates on paper in carloads from Milwaukee to Kakauna, Wis., filed by the Chicago and Northwestern Railroad, suspended until October 3rd. Increase in class and commodity rates at various points reached by the Delaware, Lackawanna and Western and the Pennsylvania Railroad, suspended until September 17th. Advances in rates on potatoes from points in Oklahoma to points in Colorado, suspended until September 20th. Advances in rates on brooms from Chicago and other interstate points to Denver and other points, suspended until December 10th. Advances in rates on packing house products originating at, or destined to points in Louisiana, Arkansas and Oklahoma, suspended until October 4th. Advances in switching charges at Detroit, Mich., on all classes of freight suspended until December 27th.

Rate Increases.

AMONG the increases that were allowed during the month were the following: Advances in rates on canned goods from points in Iowa to Little Rock and Pine Bluff, Arkansas; advances in rates on shipments of sugar and other commodities between New Orleans and Sterling, Illinois; advances in rates on coal from mines in Kentucky and West Virginia to Milwaukee, Manitowac and Kawanee over the Pere Marquette Railroad.

Rate Increases Denied.

THE Commission has cancelled the following proposed rate increases: On plaster and gypsum rock from points in Kansas to destinations in Arkansas and Missouri; break-bulk rates on grain from points in Wisconsin to Boston, New York, Philadelphia and other Eastern points; advances in rates on salt from Milwaukee, Wisconsin, to points on the Wabash Railroad west of the Mississippi River; advance

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in the Chicago, Milwaukee and St. Paul switching charge on coal within the Chicago switching limits; advances in the rates on lumber from Southern lumber producing territory to Des Moines, Iowa; advances in freight rates on bituminous coal in carload lots from the mines at Panama, Ill., to Iowa points; advances in rates on bituminous coal from Southern Illinois to points west of the Missouri River; advances in rates on pig iron from producing points in Virginia to destinations in Pennsylvania and New Jersey.

ORGANIZATION NOTES.

Annual Meeting of the Traffic Club of Pittsburgh.

BETWEEN 400 and 500 members of the Pittsburgh Traffic Club, held their annual business meeting and election at the Oakmont Country Club, on June 9th. The officers elected were: President, E. C. Sattley, manager of the Page Woven Wire Company; first vice-president, D. G. Gray, of the Western Maryland Railroad; second vice-president, William F. Morris, Jr., of the Crucible Steel Company; secretary, D. L. Wells; treasurer, J. T. Neison; board of governors, H. G. Dow, John M. Gross, J. B. Nessle, L. C. Bihler and W. A. Sproull.

Following the announcement of the election, the club presented the retiring president, J. T. Johnston, with a gold watch, who in response thanked the club for their support of his administration and requested co-operation in the next. An address on the history of the Traffic Club was delivered after the dinner by Robert Hunter.

Mr. C. S. Belsterling, traffic manager of the American Bridge Company, made the speech of presentation to the retiring president. He said in part:

"I have been appointed a committee of one, representing the full membership of this organization, to bring to your attention a well known

C. S. Belsterling.
Traffic Manager, American Bridge Co.

psychological fact—namely, that each man's personality is the center of some out-reaching influence—he is an unconscious influence for good or for evil—in a word an influence for construction or for destruction.

"Our retiring president may rightly be enrolled in the Hall of Fame of The Traffic Club, of Pittsburgh. He, too, has been faithful to the task assigned to him, he has worked diligently to maintain the high standard of our organization and has added also another rung in the ladder of our success.

"As a token of appreciation, Mr. Johnston, I am afforded the signal honor to present to you, on behalf of the gentlemen of The Traffic Club,

J. T. Johnston.
Retiring President, Pittsburgh Traffic Club.

E. C. Sattley.
Newly Elected President of the Pittsburgh Traffic Club.

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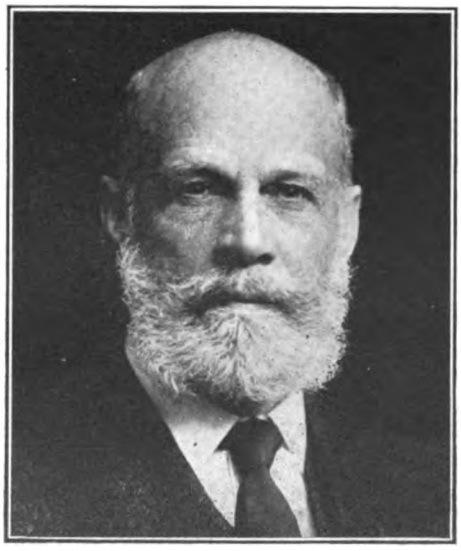
of Pittsburgh, this watch—may it tick, and tick and tick forever—indeed figuratively into eternity—ever telling in an audible manner of the friendship we all have for you and our genuinely sincere appreciation of how you have labored so well as our president to press onward and upward the affairs of our Club during the administration about to close."

The New President of the National Association of Manufacturers.

COLONEL GEORGE POPE, of Hartford, Conn., whose photograph is herewith presented, has been elected president of the National Association of Manufacturers. For seventeen years he has been actively connected with important commercial organizations, and as president of the Connecticut State Association of Manufacturers, has been actively engaged in legislative and other work pertaining to manufacturing interests. Colonel Pope, is a director from New England in the Chamber of Commerce of the United States of America, and is treasurer of the Automobile Chamber of Commerce a new organization consolidating the two largest national associations in the automobile industry. The following extracts are from a message from Colonel Pope to the members of the National Association of Manufacturers, issued shortly after his election.

"In this salutation it is appropriate that some outline be presented of my interpretation of the policies enunciated by the Association. On the issue of criminal unionism my adherence to the avowed principles of this organization admits of no misinterpretation; to the backs of the betrayers of honest labor I would be among the first to apply the lash. Organizations of workmen who respect the law and ask no special privileges on account of their organizations, and who believe every man has the right to earn a lawful living in any lawful way, I approve. I am and shall continue in opposition to the un-Christian, un-American closed shop.



COLONEL GEORGE POPE.

Newly Elected President of the National Association of Manufacturers.

"To the breeders and exploiters of industrial and social distress, I say: I believe it is impossible for this nation permanently to endure if class is to be pitted against class, either by legislation or by exemption from operation under existing law. As said by the immortal Lincoln: 'This nation cannot endure one-half slave and one-half free.'

"On the question of tariff I subscribe heartily to the principle of this Association declaring for the establishment of a permanent, non-partisan commission of experts to investigate, compile, and report its findings to the Congress of the United States. No tariff should ever be enacted upon any other basis of information than that the revenue for the support of our Government may be sufficient, and that the manufacturer may still be afforded ample protection as between the differences in the cost of production in our own country and in foreign nations, that our labor may be well rewarded for its share in production and the consumer may be enabled to purchase the full value of the dollar given in exchange.

"On the question of currency I am in hearty sympathy with the policy as enunciated at and adopted by our last convention. Money is, in my judgment, as much of a commodity in the markets of trade as food stuffs; I believe it is as criminal to create a famine in that market by any men or set of men acting in unison as to corner food supplies and thus create famine and panic.

"In the conservation of the human and physical resources of the country, this Association has been a mighty factor. It was among the first to advance and adopt equitable workmen's compensation laws. In the education of youth it has a profound interest; to reduce the tremendous waste of the nation's boys and girls, those who leave school in the earliest grades, I would earnestly urge a system of compulsory industrial training for young people at work.

"In all our efforts to promote the industries of this country; the welfare of our workmen, and our people; the extension of our commerce beyond the seas; in short, the nation's prestige and the nation's honor, let us show a complete sense of our civic responsibilities. That I may fully discharge the great duties of my office as your president, I bespeak humbly the loyal, inspiring support with which you have upheld my predecessors."

Convention of Brotherhood of Railway Trainmen.—At the convention of the Brotherhood of Railway Trainmen held in San Francisco during June, W. G. Lee, of Cleveland, was re-elected grand president.

Other officers elected were:

Assistant president, D. R. Dodge, Cleveland; vice-presidents—first, Val Fitzpatrick, Columbus, O., (re-elected); second, James Murdock, Toronto Ont., (re-elected); third, A. F. Whitney, 482 votes against Martin Degnan, Schenectady, N. Y., 349 votes. Whitney was a candidate both for grand president and for re-election as third vice-president. General secretary and treasurer, A. E. King, Cleveland, O., incumbent; editor of Trainmen, D. L. Case, Cleveland, O., incumbent.

It was decided that in the future, on account of the expense incurred, triennial instead of biennial conventions would be held. In this de-

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cision the delegates upheld President Lee and the executive officers who favored a three-year intermission between conventions. The Brotherhood has adopted a referendum method for electing officers where the majority of such lodges demand it by vote.

President Lee announced that while no action would be taken by the session upon the question of a strike on the Eastern roads, a referendum vote could be taken by the lodges of the Eastern division, beginning June 15th. Mr. Lee also announced that he was in favor of changing the Erdman Act, increasing the size of the Federal Arbitration Commission from three to six members. The Association approved a change in the organization's insurance methods. All policies hereafter will be paid in full when the holders reach the age of ten. Proposals to adopt a form of paid-up insurance, such as that offered by regular companies, and also to make the loss of one eye total disability, were defeated.

By a vote of three to one, the brotherhood registered opposition to the proposed workmen's compulsory compensation act now before Congress.

The report of the general secretary and treasurer of the Brotherhood of Railway Trainmen showed that more than $8,000,000 had been expended by the Brotherhood in the last two years. In death and disability claims alone during the years 1911-12, nearly $5,000,000 was expended. According to the officials of the organization, it costs $200,000 every time a convention is held.

Resolutions were adopted looking to amendments of the law relating to hours of service. The present law compels a railroad company to give a man ten hours' lay-off after each shift of sixteen hours, but it is asserted that men often are kept at work for much longer periods on the prtense that their train has been idle a considerable part of the time and actually moving only sixteen hours. The railroad men would have the law limit their services to sixteen hours continuous duty, regardless of all other conditions, except those brought about by a wreck.

Another movement set on foot is intended to bring about legislation placing a minimum of $100 fines for violation of the full-crew law.

Annual Session of Brotherhood of Locomotive Firemen and Enginemen.—At the annual convention of the Brotherhood of Locomotive Firemen and Enginemen, held in Washington during June, it was voted to continue the headquarters of that organization in Peoria, Ill., for the present, but the question was not finally disposed of. Ratification was also obtained of and general working agreement with the Brotherhood of Locomotive Engineers, the agreement having been approved by the latter body at its recent meeting in Chicago. Under the agreement the two organizations hereafter will work in harmony on all questions in issue between them and the railroads of the country. The convention also discussed the proposition of having a legislative congress composed of representatives from each lodge in the various States, elect a national legislative representative to be stationed in Washington. No action, however, was taken. The sessions lasted almost the entire month of June and over one thousand delegates were present. All employes engaged in the operation of electric locomotives were made eligible for membership in the Brotherhood of Locomotive Firemen and Enginemen by an amendment to the constitution.

American Railroad Employes' and Investors' Association Disbands.—At a meeting on April 15, 1913, the Executive Committee of the American Railroad Employes' and Investors' Association, having considered carefully all the conditions, the work accomplished and probable future needs and support by the membership, concluded that it is not desirable to continue the general work of the Association.

Accordingly further operations of the general organization and offices were ordered suspended as of June 1, 1913.

In taking this action the committee voiced its satisfaction with the work accomplished and the intention not to prejudice continuation of its branches locally where desired or further work along the lines of the movement in territories where deemed expedient.

All application fees collected from employes since June 1, 1912, will be refunded.

The general officers of the Association express to the members their sincere appreciation of the support and co-operation which has been rendered.

Convention of Order of Railway Conductors.—At the convention of Railway Conductors, held in Detroit, Michigan, the latter part of May, it was decided that the next grand division meeting, would be held in St. Louis in 1916.

Annual Convention of Traveling Engineers' Association.—The Traveling Engineers' Association, is to hold its 21st annual convention in Chicago, from August 12th to 15th inclusive. Among topics to be discussed are: Means for minimizing the smoke evil; Scientific train loading; Care of locomotive brake equipment and the Operation of superheated locomotives.

Annual Convention of Railway Mail Clerks.—The National Railway Mail Clerks' Association, which held its annual convention in Cincinnati, the latter part of May, decided not to meet again for two years and to have biennial conventions regularly hereafter for the sake of economy. San Francisco was chosen as the next meeting place. It was also decided to include a referendum clause in the constitution of the Association.

R. E. Ross, of Ludlow, Ky., was elected to succeed George Wood, of Portsmouth, N. H., as secretary-treasurer. Mr. Wood has held the office for twenty years and withdrew in favor of Mr. Ross. P. J. Schardt, of Milwaukee, Wis., was re-elected president.

Annual Convention of Railway Storekeepers.—The Tenth Annual Convention of the Railway Storekeepers' Association, was held in Chicago, on May 20th. J. R. Mulroy, general storekeeper of the Pullman Company, presided. One of the chief addresses was delivered by George Yeomans, a consulting engineer and formerly assistant to the president of the Wabash Railroad.

Mr. Yeomans pointed out that railroads throughout the country spend $250,000,000 annually for supplies, and urged all storekeepers to adopt methods which will result in greater efficiency.

The officers elected for the ensuing year are

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as follows: President, G. W. Gerber, Washington, D. C.; first vice-president, G. G. Allen, Milwaukee; second vice-president, H. C. Pierce, Sacramento, Cal.; secretary-treasurer, J. P. Murphy, Collinwood, Ohio.

Baggage Agents Elect President.—At the recent annual meeting of the American Association of General Baggage Agents, held in Chicago, F. J. Moore, general baggage agent of the Nickle Plate, was elected president; George L. Alley, general baggage agent of the Union Pacific, was chosen vice-president and John E. Quick, general baggage agent of the Grand Trunk, was made secretary and treasurer.

Claim Agents' Convention.—The 24th annual convention of the Association of Railway Claim Agents, recently held in Baltimore, resulted in the election of W. B. Spalding, of St. Louis, as president. The next year's convention will be held in St. Paul. About 250 delegates were in attendance, representing the principal railroads of the United States, Canada and Mexico. One of the chief topics of the convention, was the "Safety First" movement which has a vital connection with the activities of the claim departments.

ELECTIONS AND APPOINTMENTS.

Executive.

F. W. Allen, director, Chicago and Eastern Illinois R. R. Headquarters, New York.

W. B. Biddle, vice-president, in charge of traffic and development, St. Louis & San Francisco R. R.

William A. Bissell, president, San Francisco-Oakland Terminal Railway.

Benjamin Campbell, vice-president, Boston & Maine R. R. in charge of Traffic Department. Headquarters, Boston, Mass.

F. I. Coblentz, vice-president, Hagerstown & Frederick R. R.

Robert Collett, president, International Railway Fuel Association.

A. Douglas, vice-president, in charge of books and accounting, St. Louis & San Francisco Railroad.

Newman Erb, president, Denver & Salt Lake.

W. A. Fallett, receiver, A. N. & S.

A. S. Greig, assistant to receivers, St. Louis & San Francisco Railroad.

F. A. Hibbert, director, Chicago and Eastern Illinois R. R. Headquarters, Chicago, Ill.

J. H. Hill, vice-president and general manager, Galveston, Houston & Henderson. Headquarters, Galveston, Texas.

C. F. Holt, director, Chicago and Eastern Illinois R. R. Headquarters, Chicago, Ill.

H. C. Hooker, assistant to the president, Erie Railroad. Headquarters, New York.

Howard Ingersoll, assistant to senior vice-president, New York Central Lines.

T. W. Irwin, president, Peoria, Galesburg and Western Electric Railway Company.

W. J. Jackson, president, Chicago & Eastern Illinois R. R.

Chauncey Keep, director, Chicago and Eastern Illinois R. R. Headquarters, Chicago, Ill.

A. W. Krech, vice-president, Chicago and Eastern Illinois Railroad.

W. H. Lyford, director, Chicago and Eastern Illinois R. R. Headquarters, Chicago, Ill.

George McCall, president, Catawissa Railroad.

John W. McDowell, vice-president, Galesburg and Western Electric Railway Company.

J. T. Morrison, vice-president, Pullman Railroad Co.

P. H. Morrissey, assistant to vice-president Byram, Chicago, Burlington & Quincy R. R.

W. E. Morse, vice-president and general manager, Denver & Salt Lake.

Samuel Naphlay, president, Nevada County Narrow Gauge R. R.

W. C. Nixon, vice-president in charge of maintenance and operation, St. Louis & San Francisco R. R.

G. H. Parker, assistant to third vice-president, Delaware and Hudson. Headquarters, New York.

E. P. Peck, president, Hagerstown & Frederick Railroad.

H. H. Porter, chairman board of directors and the executive committee, Chicago & Eastern Illinois R. R.

F. H. Rawson, director, Belt Railway Company of Chicago.

Alexander Robertson, assistant to the president, Missouri Pacific. Headquarters, St. Louis, Mo.

Thad W. Roedecker, receiver, Pekin and Petersburg Electric Line.

H. N. Rose, director, Chicago and Eastern Illinois R. R. Headquarters, Chicago, Ill.

C. E. Schaff, president, Houston & Brazos Valley R. R.

Theodore P. Shonts, member of board of directors, Chesapeake & Ohio Railroad.

Harold Vanderbilt, director, New York & Harlem Railroad.

Henry A. Vernet, director, Chicago and Eastern Illinois R. R. Headquarters, London, England.

Thomas H. West, receiver, St. Louis & San Francisco.

Henry A. Wilkie, assistant to chairman of the Board, Chicago Railway Company.

B. L. Winchell, receiver, St. Louis & San Francisco.

E. W. Winter, receiver, Chicago & Eastern Illinois.

Legal.

Judge John Madden, general solicitor, Kansas, Nebraska and Colorado for Missouri Pacific. Headquarters, Atchison.

Bruce Wyman, consulting counsel, New York, New Haven & Hartford R. R.

Financial.

H. B. Blanchard, secretary, Denver & Salt Lake.

Clifford Ireland, secretary-treasurer, Galesburg and Western Electric Railway Company.

Frank J. Lawlor, acting treasurer, Chicago, Terre Haute & Southeastern. Headquarters, Chicago, Ill.

Ward E. Pearson, treasurer, Denver & Salt Lake.

A. W. Swanitz, assistant treasurer, Alaska Northern Railway. Headquarters, Seward, Alaska.

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Accounting.

A. Douglas, chief accounting officer, St. Louis and San Francisco.

W. C. Logan, chief clerk to the auditor, Ft. Worth & Denver City. Headquarters, Ft. Worth, Texas.

John M. Metheany, secretary and auditor, Grand Rapids & Indiana Ry. Headquarters, Grand Rapids, Ind.

W. B. Patterson, assistant auditor, Chicago, Indianapolis & Louisville Railway. Headquarters, Chicago.

C. S. Snow, auditor, St. Louis, San Francisco & Texas R. R.

Engineering and Mechanical.

Joseph Acker, superintendent of car department, Chicago Terminal Division, Chicago, Rock Island & Pacific. Headquarters, Blue Island, Ill.

Frank B. Barclay, motive power superintendent, Illinois Central Lines. Headquarters, Memphis, Tenn.

J. D. Black, resident engineer, New York Central & Hudson River R. R. Headquarters, Rome, N. Y.

M. C. Blanchard, office engineer, Atchison, Topeka & Santa Fe R. R. Headquarters, Topeka, Kansas.

N. E. Brooks, maintenance of way engineer, Western Lines, Canadian Pacific Ry.

W. S. Burnett, district engineer of construction, Cleveland, Cincinnati, Chicago & St. Louis Ry. Headquarters, Middletown, Ohio.

J. A. Carney, superintendent of shops, the Burlington. Headquarters, Aurora, Ill.

P. J. Carter, office engineer, Western Lines, Atchison, Topeka & Santa Fe. Headquarters, Amarillo, Texas.

E. G. Chenoweth, mechanical engineer, Rock Island Lines. Headquarters, Chicago, Ill.

A. B. Clark, assistant engineer maintenance of way of roadway and track, Pennsylvania Railroad.

W. F. Devine, superintendent of motor cars, Chicago, Peoria and St. Louis.

K. A. Dunphy, resident engineer, Canadian Pacific Railway. Headquarters, Calgary, Alta.

William H. Dyer, master mechanic, Georgia & Florida Ry. Headquarters, Douglas, Ga.

J. R. Edwards, general inspector of motor cars, Lehigh Valley Railroad Company. Headquarters, South Bethlehem, Pa.

R. B. Elsworth, engineer maintenance of signals, New York Central & Hudson River. Headquarters, Albany, N. Y.

G. H. Friend, assistant chief engineer, Western Maryland Ry.

H. W. Gardner, supervisor of materials, Lake Shore Division, Lake Shore & Michigan Southern Ry. Headquarters, Cleveland, Ohio.

F. G. Glover, electric engineer, Rock Island Lines. Headquarters, Chicago.

G. S. Goodwin, mechanical engineer in charge of locomotive design, Rock Island Lines. Headquarters, Chicago, Ill.

C. A. Henry, superintendent of shops, Chicago, Burlington & Quincy. Headquarters, West Burlington, Iowa.

G. O. Huckett, master mechanic, Sterling Division, Chicago, Burlington & Quincy. Headquarters, Sterling, Colo.

E. D. Jackson, division engineer of maintenance of way, Baltimore & Ohio Railroad. Headquarters, Philadelphia, Pa.

W. J. Jackson, division engineer, Minnesota and Dakota Divisions, Chicago & North Western. Headquarters, Winona, Minn.

J. Edgar Johnson, division engineer, Pere Marquette R. R. Headquarters, Saginaw, Mich.

L. Jutton, division engineer, Madison Division, Chicago & North Western. Headquarters, Madison, Wis.

R. G. Knight, roadmaster, Northern Pacific Ry. Headquarters, Staples, Minn.

George C. Koons, assistant engineer maintenance of way in charge of bridges and structures, Pennsylvania Railroad.

C. I. Leiper, principal assistant engineer, Philadelphia, Baltimore & Washington Railroad.

G. W. Lillie, assistant mechanical engineer, Rock Island Lines. Headquarters, Silvis, Ill.

D. A. MacMillan, assistant general air brake inspector, Northern Pacific. Headquarters, St. Paul, Minn.

George S. McKee, superintendent of motive power, San Antonio and Aransas Pass Railroad. Headquarters, San Antonio, Texas.

G. L. Mattice, district engineer, North Railway. Headquarters, Montreal, Que.

F. W. Mellor, architect, New York, New Haven & Hartford R. R.

J. H. Milton, superintendent, car department, Rock Island Lines. Headquarters, Chicago.

Joseph H. Nash, superintendent of motive power, Illinois Central Lines. Headquarters, Chicago.

George Peck, roadmaster, Canadian Pacific. Headquarters, Calgary, Alta.

Frank W. Pfleging, signal engineer, Union Pacific. Headquarters, Omaha, Neb.

C. A. Preston, valuation engineer, Pennsylvania Railroad.

L. J. Putnam, principal assistant engineer, Chicago & North Western. Headquarters, Boone, Iowa.

Joseph T. Richards, consulting engineer maintenance of way, Pennsylvania Railroad.

William J. Ridley, road foreman of engines, Fargo Division, North Pacific. Headquarters, Fargo, N. D.

C. E. Segrest, general mechanical inspector, Louisville & Nashville R. R. Headquarters, Anniston, Ala.

M. E. Thomas, division engineer, East and West Iowa and Iowa and Minnesota divisions, Chicago & North Western. Headquarters, Boone.

A. M. Turner, district engineer in charge of construction, Chicago, St. Louis, Cairo and Michigan divisions, of the Cleveland, Cincinnati, Chicago & St. Louis, and Peoria & Eastern Railway, west. Headquarters, Indianapolis, Ind.

J. E. Willoughby, assistant chief engineer, Atlantic Coast Line. Headquarters, Wilmington, N. C.

Charles Yoder, assistant engineer of track, Lake Shore & Michigan Southern and the Dunkirk, Allegheny Valley & Pittsburgh. Headquarters, Cleveland.

G. A. Ziehlke, signal supervisor, Kansas Division, Union Pacific. Headquarters, Kansas City, Mo.

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Operation.

A. J. Alexander, superintendent, Colorado Division, Missouri Pacific System. Headquarters, Pueblo, Colo.

P. Alquist, superintendent, car department, Missouri, Kansas & Texas. Headquarters, Sedalia, Mo.

R. Armstrong, superintendent district 4, Manitoba Division, Canadian Pacific. Headquarters, Souris, Man.

R. B. Ayres, superintendent, Rio Grande Division, Texas & Pacific. Headquarters, Big Springs, Texas.

James Bain, general superintendent, Halifax & Southwestern. Headquarters, Halifax, N. S.

Frank B. Barclay, superintendent of motive power, Yazoo & Mississippi Valley Railroad. Headquarters, Memphis.

F. D. Batchellor, assistant superintendent, Toledo Division, Cincinnati, Hamilton & Dayton. Headquarters, Dayton, Ohio.

Robert W. Bell, general superintendent of motive power, Yazoo & Mississippi Valley Railroad. Headquarters, Chicago.

A. R. Burnham, general yardmaster, New York Central. Headquarters, Gardenville.

J. Cannon, superintendent, Eastern Division, Missouri Pacific System. Headquarters, Sedalia, Mo.

J. B. Carothers, assistant to general superintendent, Cincinnati, Hamilton & Dayton. Headquarters, Cincinnati.

Phil. Carroll, superintendent, Missouri Division, Missouri Pacific System. Headquarters, Poplar Bluff, Mo.

George F. Dickson, superintendent, Georgia & Florida Ry.

E. W. DuVal, superintendent, district 3, Saskatchewan Division, Canadian Pacific. Headquarters, Saskatoon, Sask.

R. H. Dwyer, superintendent of construction, Tela Railroad. Headquarters, Tela, Honduras.

J. K. Fahey, assistant superintendent, Morgan's Louisiana & Texas Railroad & Steamship Co., and the Louisiana Western R. R. Headquarters, New Orleans, La.

James Fitzsimons, general manager, Quebec, Montreal & Southern Railroad. Headquarters, Montreal.

H. D. Grout, acting general superintendent, Canadian Pacific.

T. H. Hayden, general manager, Cumberland Railroad. Headquarters, Warren, Ky.

J. W. Knightlinger, superintendent, Morgan's Louisiana & Texas Railroad & Steamship Co., and the Louisiana Western R. R. Headquarters, Lafayette, La.

J. Knowles, general yardmaster, Lake Shore. Headquarters, Erie, Pa.

William Lynch, superintendent, Rio Grande Division, Texas & Pacific Ry. Headquarters, Big Spring, Texas.

M. A. McCarthy, assistant superintendent of telegraph, Baltimore and Ohio Southwestern and the Cincinnati, Hamilton & Dayton. Headquarters, Cincinnati, Ohio.

W. R. Mann, assistant superintendent, Houston & Texas Central. Headquarters, Ennis, Texas.

G. H. Marshall, superintendent, west half, Chicago-Council Bluffs Division, C. M. & St. P.

F. B. Miller, superintendent, Denver & Salt Lake.

F. B. Mitchell, superintendent, Toledo Division, Cincinnati, Hamilton & Dayton. Headquarters, Dayton, Ohio.

W. C. Nixon, chief operating officer, the Frisco.

Capt. John D. Patterson, general superintendent, Panama Railroad.

Charles A. Plumly, assistant to the general superintendent, Baltimore & Ohio Southwestern and the Cincinnati, Hamilton & Dayton. Headquarters, Cincinnati, Ohio.

R. D. Purvis, trainmaster, Georgia & Florida. Headquarters, Douglas, Ga.

N. P. Ramsey, general manager, Lorain, Ashland & Southern.

F. N. Reynolds, general yardmaster, Great Northern. Headquarters, Great Fallas, Mont.

J. J. Rhodes, superintendent, Central Division, Philadelphia, Baltimore & Washington Railroad.

E. W. Scheer, superintendent, Illinois Division, Baltimore & Ohio Southwestern R. R. Headquarters, Flora, Ill.

T. A. Shea, superintendent, Valley Division, Missouri Pacific System. Headquarters, McGehee, Ark.

L. M. Shipley, trainmaster, Second District, Albuquerque Division, Atchison, Topeka & Santa Fe Coast Lines. Headquarters, Winslow, Ariz.

George R. Sinnickson, superintendent, Schuylkill Division, Pennsylvania Railroad.

Noel W. Smith, superintendent, Middle Division, Pennsylvania Railroad.

O. E. Smith, chief dispatcher, Oregon Short Line. Headquarters, Pocatello, Idaho.

J. F. Sugrue, superintendent, Lake Charles & Northern. Headquarters, DeRidder.

J. L. Terry, general superintendent and auditor for receivers, Denver, Laramie & Northwestern. Headquarters, Denver, Colo.

R. W. Titus, chief dispatcher, Oregon Short Line. Headquarters, Nampa, Ida.

William Thomas, trainmaster, first district, Albuquerque Division, Atchison, Topeka and Santa Fe Railway. Headquarters, Gallup, N. M.

J. M. Thompson, trainmaster, Texas & Pacific. Headquarters, Bunkie, La.

H. Tozler, superintendent, Alaska Northern Railway. Headquarters, Seward, Alaska.

B. F. VanVilet, superintendent, East half, Chicago-Council Bluffs Division, C. M. & St. P.

R. C. Watkins, acting superintendent, Galveston, Harrisburg & San Antonio. Headquarters, San Antonio, Texas.

A. G. Whittington, superintendent, San Antonio Division, International & Great Northern Ry. Headquarters, San Antonio, Texas.

Traffic.

R. F. Abernathy, claim agent, Indiana Division, Illinois Central. Headquarters, Chicago.

H. P. Anewalt, general freight agent, Atchison, Topeka & Santa Fe Coast Lines. Headquarters, Los Angeles, Cal.

J. M. Ball, general cotton agent, International and Great Northern. Headquarters, Houston, Texas.

W. G. Barnwell, assistant freight traffic manager, Atchison, Topeka & Santa Fe Coast Lines. Headquarters, San Francisco, Cal.

F. A. Bell, general agent, Santa Fe Coast Lines. Headquarters, San Francisco, Cal.

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G. T. Bell, passenger traffic manager, Grand Trunk Railway System. Headquarters, Montreal, Que.

W. B. Biddle, chief traffic officer, the 'Frisco.

J. H. Bingham, traveling freight agent, Missouri, Pacific-Iron Mountain System. Headquarters, Indianapolis, Ind.

B. J. Breser, contracting freight agent, Wheeling & Lake Erie. Headquarters, Toledo.

E. C. Brooks, general agent, Detroit, Toledo & Ironton. Headquarters, Ironton, Ohio.

H. C. Bush, traffic manager, Idaho & Washington Northern. Headquarters, Spokane, Wash.

Frank J. Butler, traveling freight agent, Union Pacific. Headquarters, St. Louis.

W. V. Butler, assistant chief train agent, Western Lines, Grand Trunk System. Headquarters, Detroit, Mich.

J. S. Caldwell, adjuster, Rock Island. Headquarters, Little Rock, Ark.

Edward H. Calef, general freight agent, St. Louis, Iron-Mountain & Southern. Headquarters, St. Louis, Mo.

C. C. Chisholm, district freight and passenger agent, Southern Pacific. Headquarters, Seattle, Wash.

F. E. Clarke, traveling passenger agent, Chicago & Alton Railroad. Headquarters, St. Louis, Mo.

O. Collins, traveling passenger agent, Rock Island Lines.

Cornelius R. Coughlin, assistant general freight agent, Chicago, Terre Haute & Southeastern. Headquarters, Chicago.

John J. Coyle, general western freight agent, Delaware & Hudson Railroad. Headquarters, Albany.

E. E. Cross, northern passenger agent, Pere Marquette R. R. Headquarters, Petoskey.

A. W. Crowther, general freight and passenger agent, Sugarland Railway. Headquarters, Sugarland, Texas.

G. A. Deuel, division freight agent, Texas and Pacific. Headquarters, El Paso, Texas.

W. H. Doll, general agent, passenger department, Western Maryland.

John Dorsey, general freight and passenger agent, Lorain, Ashland & Southern.

E. Douglass, general passenger agent, Baltimore Stea, Packet Co. (Bay Line). Headquarters, Baltimore, Md.

M. J. Dowlin, assistant general freight agent, Chicago, Rock Island & Gulf Ry. Headquarters, Fort Worth, Texas.

J. C. Eaton, general agent, Passenger department, Northern Pacific. Headquarters, Cincinnati, Ohio.

James Edward, division freight agent, Grand Trunk Railway System. Headquarters, Ottawa, Ont.

H. C. Emery, traveling freight and passenger agent, Southern Pacific. Headquarters, San Diego, Cal.

W. W. Finley, Jr., agent, Union Line of Southern Railway. Headquarters, Newark, N. J.

C. B. Fox, traveling freight agent, Texas & Pacific. Headquarters, Shreveport, La.

P. M. Gatch, assistant chief claim agent, Illinois Central. Headquarters, Evansville, Ind.

B. E. George, contracting freight agent, Illinois Central. Headquarters, Chicago.

C. E. Harris, general Eastern agent, Minneapolis & St. Louis R. R. Headquarters, New York.

John S. Hickey, soliciting agent, Central of Georgia Railroad. Headquarters, Chicago, Ill.

Guy Hill, traveling passenger agent, Southern Pacific. Headquarters, Seattle, Wash.

W. D. Holliday, traffic manager, Lorain, Ashland & Southern.

T. H. Hopkins, assistant general passenger agent, Louisiana Railway & Navigation Company. Headquarters, Shreveport, La.

L. Huekels, contracting freight agent, Illinois Central. Headquarters, Dubuque, Iowa.

W. M. Hughes, traveling passenger agent, Chicago, Burlington & Quincy. Headquarters, St. Paul, Minn.

G. S. Humphrey, claim agent, Western Lines, Grand Trunk System. Headquarters, Battle Creek, Mich.

R. D. Jennings, traveling freight agent, Southern Pacific. Headquarters, Seattle, Wash.

W. I. Jones, assistant general freight agent, Missouri Pacific and the St. Louis, Iron Mountain & Southern.

George Kassling, general agent, Kansas City Southern. Headquarters, St. Louis, Mo.

J. O. Kelly, freight agent, New York Central Lines. Headquarters, Lewiston.

J. W. King, district freight agent, International & Great Northern. Headquarters, San Antonio, Texas.

L. D. Knowles, assistant general freight agent, Missouri Pacific and the St. Louis, Iron Mountain & Southern. Headquarters, Omaha, Neb.

C. C. Kunz, commercial agent, Illinois Central. Headquarters, Dubuque, Iowa.

W. E. Lawson, freight claim agent, Chicago, Indianapolis & Louisville Ry. Headquarters, Chicago, Ill.

C. H. Lewis, traveling freight agent, Texas and Pacific Railway. Headquarters, St. Louis, Mo.

J. W. McBurney, traveling passenger agent, Union Pacific. Headquarters, St. Louis.

J. C. McCabe, assistant general freight agent, Chicago, Rock Island & Gulf Ry. Headquarters, Fort Worth, Texas.

C. C. McCarthy, general agent, Missouri Pacific and the St. Louis, Iron Mountain & Southern. Headquarters, Pittsburgh, Pa.

J. J. McCarty, commercial agent, Atlantic, Birmingham and Atlanta. Headquarters, Cincinnati, Ohio.

J. F. McMahon, traveling freight agent, Illinois Central. Headquarters, Waterloo, Iowa.

C. M. Miller, adjuster, Rock Island. Headquarters, Des Moines, Ia.

Lewis Mims, fuel and timber agent, Sunset-Central Lines. Headquarters, Houston, Texas.

A. S. Munro, commercial agent, Grand Trunk. Headquarters, London, Ont.

William F. Nagle, traveling freight agent, Lehigh Valley. Headquarters, South Bethlehem, Pa.

H. J. Nelson, traveling freight and passenger agent, Illinois Central and Yazoo & Mississippi Valley Railroads. Headquarters, Portland, Oregon.

C. L. Netherland, traveling freight agent, Illinois Central. Headquarters, Ft. Dodge, Iowa.

R. A. Norman, traveling freight agent, Nickel Plate Road. Headquarters, Buffalo.

W. H. Paul, general freight agent, "Moffat Road." Headquarters, Denver, Colo.

C. C. Perkins, assistant city passenger agent,

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Rock Island System. Headquarters, Pueblo, Colo.

C. E. Perkins, assistant general traffic manager, Missouri Pacific and St. Louis, Iron Mountain & Southern. Headquarters, St. Louis.

George Z. Philips, assistant general passenger agent, Seaboard Air Line. Headquarters, Jacksonville, Fla.

F. H. Plaisted, assistant director of traffic, Southern Pacific Company.

L. C. Rafert, general freight agent, Colorado Midland Railway. Headquarters, Denver, Colo.

A. M. Reinhardt, assistant general freight agent, Santa Fe Coast Lines. Headquarters, Los Angeles, Cal.

J. A. Rice, traveling freight agent, Kansas City Southern. Headquarters, St. Louis, Mo.

J. B. Russell, contracting freight agent, Illinois Central. Headquarters, Chicago.

A. G. Schaffer, general southern agent, Delaware & Hudson Railroad. Headquarters, Philadelphia.

W. A. Scrivner, traffic manager, Aransas Harbor Terminal Railway, Aransas Pass Channel & Dock Company, and Port Aransas Transportation Company. Headquarters, Aransas Pass, Texas.

J. R. Shannon, commercial agent, Minneapolis & St. Louis R. R. Headquarters, Cincinnati, Ohio.

T. A. Sherwood, traveling freight agent, the Wabash. Headquarters, Memphis, Tenn.

L. H. Simonds, adjuster, Rock Island. Headquarters, Kansas City, Mo.

H. R. Slifer, freight and passenger agent, Susquehanna, Bloomsburg & Western. Headquarters, Watstown, Pa.

C. E. Spear, commercial agent, Southern Pacific. Headquarters, Santa Barbara, Cal.

L. H. Schachtmayer, commercial agent, Southern Pacific. Headquarters, Long Beach, Cal.

Arthur T. Stewart, general freight agent, Missouri Pacific. Headquarters, Kansas City, Mo.

Wilmer C. Stith, traffic manager, Terminal Railroad Association of St. Louis. Headquarters, St. Louis, Mo.

Ben Stone, traveling freight agent, Illinois Central. Headquarters, Bloomington, Ill.

H. W. Stoutenborough, assistant general freight and passenger agent, Bingham & Garfield Ry. Headquarters, Salt Lake City, Utah.

W. E. Taylor, commercial agent, Rock Island. Headquarters, Lincoln, Neb.

W. M. Tisdale, special agent, operating department, Eastern Lines, Grand Trunk. Headquarters, Montreal, Que.

J. B. Trimble, general eastern freight agent, Missouri, Pacific-Iron Mountain R. R. Headquarters, New York City.

J. C. Valentine, commercial agent, International & Great Northern. Headquarters, Dallas, Texas.

M. Walsh, traffic manager, Georgia Coast & Piedmont. Headquarters, Brunswick, Ga.

J. F. Ward, contracting freight agent, Illinois Central. Headquarters, St. Louis, Mo.

C. B. Ware, adjuster, Rock Island. Headquarters, Des Moines, Ia.

C. E. Warner, coal traffic agent, Missouri Pacific and the St. Louis, Iron Mountain & Southern. Headquarters, St. Louis, Mo.

H. B. Weatherwax, industrial agent, Delaware & Hudson. Headquarters, Albany, N. Y.

A. F. Weissenberg, depot ticket agent, Cincinnati, Hamilton & Dayton. Headquarters, Cincinnati.

T. H. Wilhelm, general freight agent, Chicago, Rock Island & Gulf Ry. Headquarters, Ft. Worth, Texas.

Harry T. Wilkins, special agent, traffic department, Pennsylvania Railroad. Headquarters, Philadelphia.

W. W. Wood, general passenger agent, Manitou & Pikes Peak Railway.

E. K. Yaeger, commercial agent, Georgia Southern & Florida. Headquarters, Chicago, Ill.

J. T. Young, city passenger agent, Louisiana Railway & Navigation Company. Headquarters, New Orleans, La.

W. D. Young, traveling freight agent, Missouri, Pacific Iron Mountain. Headquarters, San Antonio, Texas.

Purchasing.

C. C. Anthony, purchasing agent, Denver & Salt Lake. Headquarters, Denver, Colo.

F. A. Bushnell, purchasing agent, Great Northern Railway. Headquarters, San Antonio, Texas.

G. E. Scott, assistant purchasing agent, Missouri, Kansas & Texas Railway. Headquarters, St. Louis, Mo.

L. B. Wood, purchasing agent, Sunset- Central Lines of the Southern Pacific Company. Headquarters, Houston, Texas.

Industrial.

James F. Peters, general colonization agent, Marshall and East Texas. Headquarters, Chicago.

Miscellaneous.

Frank H. Mott, secretary, Public Service Commission.

RESIGNATIONS.

Executive.

W. F. Berry, vice-president in charge of traffic department, Boston and Maine R. R.

F. I. Coblentz, president, Hagerstown and Frederick R. R.

E. S. Harlan, receiver, A. N. & S.

F. A. Heron, president, San Francisco-Oakland Terminal Railways Company.

S. A. Kidder, president, Nevada County Narrow Gauge R. R.

J. A. Smith, president, Panama Railroad.

Wright Smith, vice-president and general manager, Jonesboro, Lake City & Eastern Railway.

T. C. Todd, vice-president, Hagerstown and Frederick R. R.

A. H. Wheatley, assistant to the president, Alaska Northern R. R.

B. L. Winchell, president, Chicago & Eastern Illinois Central Railroad and the St. Louis & San Francisco R. R.

Legal.

Judge John Madden, attorney, Missouri, Kansas & Texas Railroad.

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Financial.

E. F. Young, acting treasurer, Chicago, Terre Haute & Southeastern.

Accounting.

E. B. Pierce, auditor, St. Louis, San Francisco & Texas R. R.

J. F. Waddell, auditor for receivers, Denver, Laramie & Northwestern.

Engineering and Mechanical.

H. M. Barr, master mechanic, Sterling Division, Chicago, Burlington & Quincy R. R.

R. L. Boulden, resident engineer, Great Northern.

P. J. Carter, office engineer, Gulf, Colorado & Santa Fe Ry.

Charles Hansel, chief engineer, Cincinnati Union Depot & Terminal Co.

Nathan Henry, locomotive engineer, Pennsylvania Railroad.

F. E. Hutchinson, electrical engineer, Chicago, Rock Island & Pacific.

Philip McGuire, roadmaster, Northern Pacific.

C. A. Seley, mechanical engineer in charge of car design, Rock Island Lines.

V. D. Simar, chief engineer, Duluth, South Shore & Atlantic and the Mineral Range.

R. A. Thompson, chief engineer, Railroad Commission.

Edwin F. Wendt, assistant engineer, Pittsburgh & Lake Erie R. R.

Operation.

C. M. Andrews, superintendent, Missouri, Pacific-Iron Mountain Railroad.

Morgan K. Barnum, general superintendent of Motive Power, Yazoo & Mississippi Valley Railroad.

J. J. Corcoran, superintendent, Toledo Division, Cincinnati, Hamilton & Dayton.

E. L. Davis, general superintendent, Alaska Northern R. R.

John K. Fahey, superintendent, Lake Charles & Northern.

James Hughes, assistant superintendent of dining and sleeping cars, St. Paul System.

Edward F. Kearney, general superintendent of transportation, Missouri Pacific and St. Louis Iron Mountain & Southern.

H. G. MacCormack, station master, Southern Pacific.

J. A. Smith, general superintendent, Panama Railroad.

A. G. Whittington, superintendent, Rio Grande Division, Texas and Pacific Ry.

Traffic.

M. A. Berger, freight and passenger agent, Susquehanna, Bloomsburg & Western.

C. E. Bryan, joint ticket agent, Hocking Valley and Clover Leaf.

H. C. Bush, traffic manager, Colorado Midland.

M. J. Costello, district passenger agent, Northern Pacific.

C. A. Davis, general freight and passenger agent, Sugarland Railroad.

H. A. Fidler, division freight agent, Detroit, Toledo and Ironton.

I. M. Griffin, general cotton agent, International and Great Northern.

Thomas E. Hayward, general agent, Kansas City Southern Railway.

J. P. Higgins, commercial agent, Georgia Southern & Florida.

A. D. Huff, division freight agent, Grand Trunk Railway.

Raymond Kelly, general Eastern agent, Minneapolis & St. Louis R. R.

H. C. Koehler, general agent, Western Maryland.

W. E. Lawson, chief clerk, freight claim department, the Santa Fe System.

J. H. Lipsey, traveling freight agent, Illinois Central.

George B. McGill, soliciting agent, Central of Georgia R. R.

J. M. Mauden, traveling passenger agent, Chicago and Alton Railroad Company.

C. L. Montgomery, traveling freight agent, the Wabash.

J. A. Morgan, commercial agent, St. Louis Southwestern Ry.

G. Z. Phillips, general passenger agent, Baltimore Steam Packet Company (Bay Line).

J. Rosenzweig, traveling freight agent, Illinois Central.

W. A. Scriver, division freight agent, Texas and Pacific.

I. H. Shoemaker, industrial agent, Delaware & Hudson R. R.

C. E. Wagar, assistant general freight agent, Missouri Pacific-Iron Mountain.

M. Walsh, commercial agent, Atlantic, Birmingham & Atlanta.

K. M. Wharry, general freight agent, Missouri Pacific Lines.

Purchasing.

G. E. Smith, purchasing agent, Louisiana Ry. & Navigation Co.

R. S. Stephens, general purchasing agent, Morgan's Louisiana & Texas and the Louisiana Western Lines.

OBITUARY.

John Clark Cushman, former secretary of the Plymouth, Kankakee & Pacific R. R., now a part of the New York Central system, died at his home in Chicago, June 4th.

Francis E. Ward, former general manager of the Chicago, Burlington & Quincy R. R., died June 6th, at the German Hospital in Chicago. Mr. Ward, who since his resignation as general manager has been doing special work on the staff of the president of the Burlington, was born in Montreal, Que., July 29, 1867. He was educated at the McGill Model School, Montreal, and entered railway service in September, 1881. Until November, 1885, he was apprentice clerk and stenographer in the mechanical department of the Grand Trunk Railway, at Montreal; January, 1886, to December, 1887, secretary to the second vice-president of the St. Paul, Minneapolis & Manitoba Ry. at St. Paul, Minn., and then until November, 1890, secretary and chief clerk to the president and general manager of the Eastern

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FRANCIS EDWARD WARD.

Ry., of Minnesota. In January, 1891, Mr. Ward became secretary to the president of the Great Northern Ry., and in July, 1894, was appointed assistant to the president of that road and served in that capacity until February, 1898. After holding the position of general superintendent of the Montana Central Ry. from March to October, 1898, he was made general superintendent of the Great Northern Ry., and March 1, 1903, was appointed general manager. He resigned in October, 1907, to accept the same office with the Chicago, Burlington & Quincy R. R. He had been with that company continually since then, although he resigned the office of general manager in August, 1912, and had since that time been engaged in special work for the company.

Robert S. Seibert, president of the East Broad Top Railroad & Coal Company, died at Oak Lane, Pa., May 24th, aged 57 years. He entered railway service in January, 1874, as telegraph operator with the Pennsylvania Railroad. In October he became agent and operator of the East Broad Top and in May, 1877, trainmaster of that road. From November, 1881, to 1886, Mr. Seibert was train dispatcher on the Chicago & Eastern Illinois Railroad; then train dispatcher on the West Shore Railroad, later trainmaster; afterward with the Denver & Rio Grande Railroad, and in October, 1891, was appointed superintendent of the Pueblo Union Depot Company. In 1892 he became general manager of the Nevada Southern, and in 1896, general manager of the California Eastern Railway, of which road in 1900 he became also vice-president. He returned to the East Broad Top as general manager in July, 1903, and since November, 1903, has been president of that company.

Joseph G. Cutler, roadmaster of the Northern Pacific at Walla Walla, Wash., died in the latter city on May 29th, aged 55 years. Mr. Cutler was born at Cambridge, Mass., and was graduated from Lawrence Scientific School at Harvard University. He began railway work in 1881 as rodman for the New York West Shore & Buffalo. He was then with the Canadian Pacific, Boston Hoosic Tunnel & Western and Burlington & Missouri River until 1888, when he was made resident engineer of the Washington & Columbia River. In 1893 he was appointed chief engineer, and in 1895, also treasurer, of that road, and later, when the Northern Pacific acquired the Washington & Columbia River, he was made an assistant superintendent. Subsequently, he became roadmaster of the branch from Pasco to Walla Walla.

LEGAL.

Supreme Court Decisions.—The big event in legal decisions affecting the railways during the month, were those handed down by the Supreme Court in the Minnesota and Southwestern State rate cases. These are discussed more fully in another section of this issue. The possibility of further litigation over the Minnesota rate case is being discussed by attorneys in Minnesota following the discovery that injunctions against the enforcement of the passenger and commodity rates obtained from the United States Circuit Court by stockholders of those railroads after the Sanborn decision in the Great Northern, Northern Pacific and Minneapolis and St. Louis cases, are still enforced. It is likely that the Attorney-General of the State will ask the Circuit Court to enter a decree vacating these injunctions in view of the Supreme Court decision. This, of course, would solve the problem if the roads would consent to such a proceeding without a contest.

It is also unofficially reported that the Ann Arbor and Pere Marquette railroads are planning to attempt to get relief from Michigan's two-cent fare law, and action is likely to be taken in the courts of that State to obtain higher rates.

The Chicago, Milwaukee and St. Paul has filed an appeal in the United States Supreme Court from a decision of the Wisconsin Supreme Court which upheld the Wisconsin law requiring that the upper berth in a sleeping car be kept closed until it is sold. The railroad contends that each car is divided into units of space and in as much as they are compelled by the Interstate Commerce Commission to file a tariff stating the rates for each section of space, they would be violating the law by allowing a traveler to have two units of space for the payment of one. Moreover, it is contended that such a practice would lead to many difficulties among travelers themselves on account of influence being used with porters and conductors.

The Norfolk and Western has appealed to the Supreme Court, from the decree of the Kanawha County Circuit Court of West Virginia, holding constitutional as to this road the two-cent passenger rate law of 1907. The railway claims its net earnings upon the capital invested in the intrastate passenger business in West Virginia will be only 38-100 per cent under the two-cent law.

The Supreme Court holds in the case of the Government against the Baltimore & Ohio Railroad, that Congress had not the authority to require the railroad to raise its bridge at Parkersburg, W. Va. An indictment rested against the railroad for failure to alter its bridge across

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the Ohio River as ordered by the Secretary of War. The road contended that compliance with such orders was not stipulated in its original franchise from the Government.

The Supreme Court has handed down a decision holding that State Railroad Commissions do not have authority to prescribe rates conflicting with tariffs filed by railroads with the Interstate Commerce Commission on freight designed for export although it is shipped within the State.

The Supreme Court has declared the Oregon law of 1907 granting the State Railroad Commission valid, by sustaining the Commission's order to the Portland Railway, Light and Power Company directing that it reduce by five cents, fares on its Milwaukee and Oregon City interurban divisions.

An appeal has been taken to the United States Supreme Court by a number of railroads operating in Texas in what is known as the Shreveport rate case.

A recent decision was announced by the Commerce Court in which the order of the Interstate Commerce Commission requiring cities, or to increase their rates on similar railroads, to reduce their interstate rates on shipments from Shreveport, La., to Texas consignments between Texas points was upheld.

The Texas Railroad Commission issued an order some time ago providing for a reduction of freight rates throughout the State. The case has resulted in a conflict between the Interstate Commerce Commission and the railway commissioners of Texas.

The Supreme Court adjourned on June 16th until October with some twenty-five important cases left undecided. Among these were the cases of Samuel Gompers, John Mitchell and Frank Morrison, the officers of the American Federation of Labor, who are asking for a review of the decision of the District Court holding them in contempt for alleged violation of an injunction in the Bucks Stove & Range Company case. Execution of the sentences thus will be delayed at least until fall. Gompers, who has been sentenced to a month in jail, has been very ill for several months.

Other cases on the left-over list include the Intermountain rate case, the citrus fruit rate case affecting the Florida East Coast Railway oversea to Key West; the Kentucky and Indiana State rate cases, the Nashville-Atlanta reshipping privilege case, the New York harbor sugar lighterage case and the California oil land suits by individuals against railroads.

Among the State laws whose constitutionality remain undecided are those of New York, giving the right to city officials to tax national bank stocks regardless of debts of the owners; the Georgia law regulating headlights on locomotives; the Kentucky law taxing those who furnish information to commercial rating houses, and the Vermont law taxing saving deposits in national banks.

An Important Mail Carrying Decision.—The United States Court of Claims at Washington, has rendered a decision which lays a foundation for railroad claims amounting to many millions against the Government in connection with the carriage of United States mails. The decision carried with it a judgment of $82.604.84 in favor of the Chicago & Alton Railroad in a suit alleging unfair payment for carrying the mails. The puzzle of weighing the mails underlies the court's ruling.

The Chicago & Alton case applied only to contracts subsequent to June 7, 1907, when Postmaster General Meyer issued an order providing that when the weight of mails was taken on railroad routes the whole number of days included in the weighing period should be used as a divisor for obtaining the daily average.

The court decided that no claims could be made under the inequalities of the old practice, because Congress repeatedly used the terms of the practice in legislation, and thus established it as a long used custom. But the Alton claim was allowed as a just claim to indemnity because Secretary Meyer's order never had been recognized by Congress. It is expected that similar suits will be brought by many other railroads.

Enforcing Anthracite Carriers' Decision.—The Government has taken the final move to make effective the United States Supreme Court decision in the hard coal trust suit, by having the attorney general's office present to Judges Gray, Buffington and McPherson, in the Federal Court of Philadelphia, a decree to enforce the highest mandate cancelling, except in four instances, the so-called 65 per cent contracts under which the coal carrying railroads purchase the product of the independents. The decree, as amended, will not prevent coal companies individually from entering into the 65 per cent contract arrangement with railroads, so long as they are not the result of a concerted plan in restraint of trade.

Suit for Back Taxes Against the Rock Island.—The Polk County, Iowa, tax authorities have filed suit in District Court against the Rock Island for collection of $15,559,400, alleged back taxes, with five per cent interest and 50 per cent statutory penalty, charging illegal suppression of $100,000,000 assets during the past five years, of which one-fourth is assessable under Iowa statutes.

Terminal Railway of St. Louis Wins Case.—The Terminal Railroad of St. Louis won a victory in the Federal District Court of that city on June 16th, when Circuit Judges Sanborn and Smith filed an interlocutory decree instructing the terminal association to file new contracts in accordance with the Supreme Court decision in the ouster suit brought by the government.

The decree does not conform to that submitted by the government, which specifically prohibited the terminal association from levying a bridge toll on traffic entering St. Louis from the east.

The decree directs the terminal association to submit to the court for final approval its contracts with its constituent roads. If these contracts are approved the final decree in the case will be entered.

The Supreme Court decision directed an interlocutory decree to be filed directing the terminal association to reframe its contracts so that all roads would be admitted to the terminal on equal terms.

New Jersey Commuters Win Rate Case.—The Court of Errors and Appeals at Trenton, New Jersey, has upheld the order of the Public Utility Commission requiring the railroads to issue com-

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mutation tickets between the terminals in Jersey City and vicinity and points within the State. It is expected that the Public Utility commissioners will now undertake the rate investigation demanded by the Commuters' League of New Jersey, which had been held up by the fact that there were no commutation rates between the terminal points adjacent to New York and Philadelphia.

Grand Trunk Western Indicted for Rebating.—The United States Jury at Columbus, Ohio, has returned twenty indictments against the Grand Trunk Western Railway Company charging it with illegal concessions in freight rates between Newark, Ohio, and Battle Creek, Mich. Under the Federal laws, the company is liable to a minimum fine of $1,000 for each alleged violation or $20,000 for all.

The case investigated by the Grand Jury involves the transportation of coal from mines in Belmont County to Battle Creek, Mich.

STATE RAILWAY COMMISSIONS

General.—As might have been expected, the recent decisions by the Supreme Court in the State rate cases have caused a number of State Commissions to become more active and reports are already coming in from many directions of rate regulations that were held up while the Minnesota and Southwestern rate cases were under consideration, but which will be released and put into operation at once now that the State Commissions have been upheld in their authority.

Meanwhile the railways are studying the decision and are inclined to point out that State power may not yet be assured, and that the scope of the decision will not be known until the court hands down its finding in the Shreveport rate case hearings on which have been advanced and set for October 14th.

A new interpretation has been made by the railway interests of the phrase "the State power nevertheless continues until Congress acts, and by its valid interposition limits the exercise of the local authority." Taken first as a declaration that Congress must act before State encroachment on the domain of interstate transportation is checked, these words are now held as possibly signifying far otherwise, taken in the light of other words in the decision.

From Nebraska it is reported the State Commission is preparing to set to work at once on a revision of freight tariffs. A reduction is promised, some reports putting it at from 10 to 15 per cent. Iowa also is preparing to order reductions.

Canada.—The local freight tariff recently filed with the Canadian Railway Commission by the Intercolonial Railway, the Government-owned road covering all points on the government line in New Brunswick and Nova Scotia show some surprising increases. Practically all the rates have been raised with the exception of those between competitive points served by other railways or by water connections. One of the most important changes is the increased minimum rate from 25 to 35 cents. This will mean an extra ten cents on every small shipment. The increased general schedules range from one to eight cents a hundred pounds, which amounts in some cases to as much as twenty-five per cent. A movement for a general advance in rates in Eastern Canadian territory is to follow.

California.—The Railroad Commission has granted the application of the Southern Pacific Company to issue $30,000,000 of two-year notes at five per cent for improvement of and extensions to its lines. A detailed statement of the uses to which the money will be put was submitted with the application. In addition, the company plans to expend during the current fiscal year $10,000,000 from earnings.

Illinois.—The Railroad and Warehouse Commission has issued a statement, that in the future electric lines operating throughout Illinois, will be required to observe a uniform clearance rule.

Lives of both employes and patrons, it is contended, are endangered at present because of narrow clearances at viaducts on various electric roads. These roads have been permitted to follow their own standards and it is desired that a general rule applying to all of them should be adopted. Testimony already has been obtained from a number of experts and it is understood that a formal order will be filed by the Commission within a short time.

Louisiana.—The Railroad Commission has issued an order directing the American, Wells-Fargo and United States Express companies to accept, forward and deliver intra-state express shipments tendered them, by the shortest and most direct route and at the continuous mileage rates established by the Commission in 1911.

Missouri.—It is understood that the Public Service Commission will comply with the request of the railroads that the Commission wait for the report on the physical value of the roads until a valuation board, appointed by the Inter-State Commerce Commission completes its work.

The Commission has received an application from the Chicago, Rock Island & Pacific Railroad for the approval of a proposed issue of $4,400,000 gold notes for equipment purposes.

In a recent ruling the Commission holds that all private car companies operating in Missouri are under the jurisdiction and subject to the regulations imposed by the Commission. This affects a number of companies. The ruling was preliminary to the permit issued to the American Refrigerator Car Transit Company to issue $2,500,000 in gold notes.

Maryland.—The Public Service Commission has signed an order permitting the Baltimore & Ohio Railroad Company to issue stock certificates in the amount of $10,000,000 to be used to provide additional equipment for the road.

Attorneys for the railroad explained that the expenditure is needed for the purchase of 1,822 gondola cars, 8 steel postal cars, 60 mikado-type locomotives and 10 Mallet-type engines. The title of the stock is vested in the Girard Trust Company of Philadelphia. The petition was filed on May 22nd.

The trust certificates will be issued to an amount equal to 90 per cent of the cost of the equipment and delivered to an amount not to

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exceed $10,000,000. The issue is to be known as the Baltimore and Ohio equipment trust of 1913.

The certificates pay 4½ per cent, and ten per cent will be paid off each year.

New Jersey.—The State Public Utilities Commission has reaffirmed its order, given to the various railroads operating in the State, directing that pure and sufficient drinking water for all passengers shall be carried in each car used for the transportation of men and women.

After the law prohibiting the use of the common drinking cup went into effect the railroads stopped furnishing water for passengers, whereupon complaint was made to the State Utility Board. The latter ordered the Pennsylvania, the Lackawanna, the Erie, the Northern of New Jersey, the Susquehanna, the New Jersey & New York and the West Jersey & Seashore to resume the practice.

The carriers asked for a rehearing, which was granted. The Board has now affirmed its original ruling and ordered that water of proper quality shall be furnished on and after June 23rd. The order says:

"Having reached the conclusion that the provision of drinking water is required in adequate and proper service, the prior practice of the companies must justify the requirements as applicable to all steam passenger trains."

New York.—The Boston and Albany Railroad has made application to the Public Service Commission for approval of an issue of improvement bonds amounting to $2,015,000 payable in 25 years and to bear five per cent interest from July 1, 1913.

The Commission has addressed a lengthy letter to Governor Sulzer urging the embodiment in his message to the special session of the legislature, of a request for an appropriation of not less than $1,200,000 as the State's portion of funds for the elimination of grade crossings on the Atlantic Avenue branch of the Long Island Railroad. The amount requested would permit the expenditure of $4,800,000 immediately as the railroad company is required to spend twice the amount, and the city or county an amount equal to the State's contribution. In other words the expense of eliminating grade crossings, is in the ratio of 25 per cent state money, 25 per cent city or county and 50 per cent money of the company affected.

There is about $20,000,000 worth of such work urgently needed on the tracks of the Long Island Railroad Company, within the confines of the limits of Greater New York; which has been delayed owing to failure of the State appropriating the necessary funds. Applications for appropriations at a special session of the legislature must be made directly by the Governor.

The Commission, Second District, is to make a general investigation into the safety of operation of railroads, within New York State, having special reference to conditions indicated by railroad accidents during the past few years in this and adjoining States. The matter was considered at a meeting, the purpose of the proposed investigation being to "lay the basis for such order or orders as may be warranted by the existing transportation situation and found necessary to the safety of passengers and railroad employes."

Of the 63,988 passenger trains operated by steam railroads in New York State during the month of March, as reported to the Public Service Commission, 81 per cent were on time at the division terminal. The average delay for each late train was 42.0 minutes and for each train run, 8.2 minutes.

Waiting for trains on other divisions continue to cause delays, the record for the month mentioned being 36.4 per cent, and 15.7 was the percentage for delays due to waiting for train connections with other railroads, with 3.0 per cent for engine failures.

For the purpose of completing construction under way and providing for further additions to the company's property, the Delaware & Hudson Railroad Company was authorized by the Public Service Commission to issue $2,000,000 in four per cent bonds.

Ohio.—Permission has been asked from the Public Service Commission by the Pittsburgh, Youngstown & Ashtabula Railroad Company, to issue $640,000 four per cent 40-year bonds at par to pay the Pennsylvania Railroad Company for improvements on the property. The bonds are part of a general mortgage for $15,000,000.

Pennsylvania.—Figures taken from reports to the State Railroad Commission show that during the first quarter of 1913, 279 persons were killed on the railroads of Pennsylvania and 2,885 injured, the fatalities being six less than in the corresponding period of 1912, but the injury list greater by 308. The list of casualties on the railroads shows that no less than 166 of the killed were trespassers and that twenty persons were killed at grade crossings.

The Commission has selected an expert to inquire into the charges levied by the anthracite carrying railroads for the transportation of coal from the hard coal fields to Philadelphia. The Commission some time ago suggested that the complainants and the railroads get together and select a man for the work, the choice to be approved by the State, but no agreement has been reached and the Commission desires to have the work started at an early date. The inquiry is the result of testimony taken by the Commission in Philadelphia last fall, when it was found that not even the railroads were able to produce evidence as to the exact cost of hauling a ton of coal from the mines to Philadelphia.

Texas.—The Texas Grain Dealers' Association will make a fight before the State Railroad Commission for a readjustment of freight rates and transit privileges on grain and grain products.

The application of the St. Louis, Brownsville and Mexico Railroad for approval and registration of $776,236 of bonds has been approved by the Railroad Commission. These bonds cover the branch lines that run from Bloomington to Victoria and from Heyser to Austwell.

The Railroad Commission has adopted a motion made by Earl Mayfield to consider at public hearing on July 9th a proposition to abolish the Galveston differential and to apply straight mileage rates to that port. The proposition is favored by a majority of the Commission.

Wisconsin.—The Railroad Commission has ordered a general reduction of twenty per cent in the rates for transportation of merchandise by express, to go into effect in twenty days. The

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100-pound basing rates are considerably altered and the graduate scales on which the charges for the various weights are computed are completely changed.

LEGISLATION.

National.—The tariff continues to consume the larger part of the time of the members of both houses of Congress and it would appear that still many months must elapse before it will be whipped into final shape and ready for the President's signature. The measure, which is assuming a more radical form as it nears completion, is causing nation-wide distrust among business interests and is the one big factor in the spirit of unrest which is at present nation-wide in its influence.

At the present writing, the Sundry Civil Appropriation Bill with the exemption of labor organizations and farm associations from anti-trust prosecutions with funds provided by the measure, only requires the President's signature to become a law, and it is generally believed that the chief excutive will sign it, although possibly under protest.

Representatives of important railroad interests appeared before Senator Williams, sub-committee of the Senate Finance Committee, at Washington last month, in an effort to have this committee change Sub-section G of the income tax provision of the Underwood bill which the railroads declare to be unfair and inimical to their interests. The railroad interests were represented by W. D. Hines, of New York, chairman of the executive committee and general counsel of the Atchison, Topeka & Santa Fe. Mr. Hines said: "Under Sub-section G of the income tax assessments are levied both on corporations paying and receiving incomes. This is manifestly unfair and the railroad interests want the corporation paying an income to another corporation freed from assessment.

"It is also provided that the net income of a corporation shall be ascertained by deducting from the gross amount of the income of such corporation interests accrued and paid within the year on its indebtedness to an amount of such indebtedness not exceeding its paid-up capital stock outstanding at the close of the year. This also is manifestly unfair and I am here to ask Senator Williams' sub-committee to make changes as will permit deductions of indebtedness exceeding the entire paid-up capital stock."

Mr. Hines stated that the interests he represented control more than 100,000 miles of railroads and represent nearly a billion dollars invested capital.

An amendment to the Erdman Act backed by the heads of several great systems, the chiefs of principal railroad organizations, the National Civic Federation and others, has been introduced into the United States Senate by Senator Newlands. It is designed to meet the objections to the Erdman law, which were raised in the recent wage dispute between the locomotive firemen and Eastern railroads, by enlarging the Board of Arbitration to six members. The law now provides three. A commissioner of mediation and conciliation would be created, who, with two other Government officials to be appointed by the President, with the ratification of the Senate, would constitute a Board of Mediation and Conciliation. The Board would name disinterested arbitrators to act with arbitrators chosen by employers and employes.

The proposed amendment relies upon voluntary arbitration. While it covers only controversies arising between interstate railroads and their trainmen, both the railroad officials and the Brotherhood officials are willing to have the shopmen included, if the latter wish.

Seth Low, president of the National Civic Federation, made a statement in explanation of the bill.

Simultaneously with the introduction of the bill, Seth Low, president of the National Civic Federation, issued a long statement explaining and advocating the bill.

The result of the Supreme Court decisions in the State rate cases has already become manifest by the preparation of a bill by Representative Willis, of Ohio, a Republican member of the House, Interstate and Foreign Commerce Committee, which has for its purpose the extension of the Interstate Commerce Commission's control over intrastate rates on interstate railroads.

The basic principle of this measure will be the right of Congress to control absolutely the instrumentalities of interstate commerce, even to the extent of regulating the rates in each State. Such is Representative Willis' interpretation of what the Supreme Court of the United States held in the Minnesota rate cases to be within the power of Congress.

It is, however, generally conceded in Congress at the present time, that no legislation of this character can be obtained except after a long campaign of education. Representative Willis' bill is intended as an opening wedge.

A bill has also been introduced by Senator Lewis, of Illinois, to give the Interstate Commerce Commission control over all issues of stock by railroads or other common carriers. This bill would require the railroads to make a satisfactory showing of value to justify any increase in issue of securities.

Senator Smith, of South Carolina, has introduced a bill providing that railway and steamship lines engaged in interstate business shall be compelled to provide hereafter separate sleeping accommodations for passengers of different races.

This is the application of the Jim Crow laws existing in the various States of the South and Southwest to the sleeping car business which is broadly speaking, altogether interstate business.

Senator La Follette has introduced the most drastic amendments ever proposed to the Sherman anti-trust law. The Wisconsin Senator's measure discards all generalities and in definite and specific terms defines what restraint of trade is; what shall be interpreted as restraint of trade and how it shall be determined by the Federal Courts. At the same time the bill practically wipes out the "rule of reason" which the United States Supreme Court read into the law when the famous Standard Oil and Tobacco Trust cases were settled.

The Senate Territories Committee has agreed upon a bill for Government construction of railroads in Alaska. It provides for $40,000,000 in bonds to finance the undertaking and leave entire control to the President. The committee decided against the plan of Senator Jones for a commission of five members to supervise the construction.

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Senator Chamberlain said the President had expressed himself as in sympathy with the proposed Alaskan legislation, but had not yet agreed to recommend its consideration in the present session while tariff and currency reforms are still undisposed of.

Connecticut.—The Connecticut House of Representatives has concurred with the Senate in passing an optional workmen's compensation bill. It will be signed by the Governor, as with one exception, only those amendments suggested by him were accepted by the committee after reporting the measure to the General Assembly.

The bill applies to employers of five or more persons, excluding casual labor. The common law defenses are swept away, in event of litigation, to the party in interest who has refused to accept the compensation law.

Adjustments of compensation for death or injuries go to commissioners, of whom there is one for each Congressional district. The minimum compensation for injuries is $5 a week and the maximum $10. Dependency is taken care of, and compensation for disabilities is based on tables of liability companies.

The bill will be effective so far as organizing the commission is concerned on October 1st, while in its entirety it will be law on January 1st next.

Massachusetts.—The House of Representatives has passed the Washburn Bill over Governor Foss' veto. The measure extends the credit of Massachusetts railroads and increases the size and power of the railroad commission. The Senate also passed the Washburn Bill over the Governor's veto by a vote of 33 to 3. The bill is now a law.

Missouri.—Railroads have already obtained a sufficient number of signatures to assure the submission of the "full crew" law, enacted by the last legislature, to a referendum at the next general election. It is expected that the railroad's petition will contain double the number of signatures required by the Missouri constitution when filed with the Secretary of State.

The referendum petition will prevent the "full crew" law from becoming operative until the next general election in Missouri, November 3, 1914, at least. The law was to have become effective June 22nd.

New York.—Governor Sulzer has vetoed one of the two Cullen bills, desired by President John Purrby Mitchel, of the New York City Board of Aldermen but opposed by the barge canal interests, which would permit railroad corporations to own terminal companies. The bill was in the interest of the development of terminal facilities on the west water front of New York City. The companion bill, which permits the development of the South Brooklyn waterfront including the Bush Terminal property, was signed by the governor some days ago.

Pennsylvania.—The Senate has finally passed the House bill taxing anthracite coal 2½ per cent on the value of each ton at the mines, or approximately five cents on a ton. It is estimated that if the bill becomes a law the revenue derived will be about five million dollars, of which half will go to the nine anthracite counties in which the tax is levied and the other half will go into the general fund of the State.

Oklahoma.—The legislature of Oklahoma recently passed a "full crew" bill which Governor Cruce vetoed. The governor's message accompanying his veto is in part as follows:

"I have studied the bill from every angle and the more I have studied it, the more I have become convinced that it should not receive my approval. In the enactment of this bill, it is only the railway companies and their employes that have been considered. The thousands of people in this State who travel upon the railroads and ship their products and merchandise over same have not entered into the discussion.

"This fact, however, must remain after all has been said, that every dollar of expense placed upon railway corporations in Oklahoma will ultimately be paid by those who patronize the railroads. The cost of putting this bill into operation is estimated by the corporation commission at something like $250,000, while the cost is estimated by the railroad companies at more than $400,000. Whether it be $100,000 or $500,000 that amount in the end will be paid by those who use the railroads.

"Another thing I have learned to believe is that those who have made a lifetime study of railroad operations are better judges of the proper method of operating them than I am and I believe that this is equally true when applied to a majority of the members of any legislative body."

An active campaign has been started in Oklahoma to secure the adoption at the polls, of section 9 article 9 of the Constitution, which will permit railroads to merge. The amendment is to be voted on at a special election to be held August 5th, and the proposed change has the endorsement of the State Corporation Commission. This will make the fourth time that the people have voted upon the change.

TRAFFIC.

General Developments.—General traffic conditions in the West, so far as the railways are concerned, continue extremely favorable and in the majority of instances, show loadings far in excess of previous years. Indications point to large grain crops, and the roads are generally busy getting their equipment in order to meet the pressure which will be brought to bear as soon as these crops begin to move. Coal is also moving freely and the iron ore tonnage on the Great Lakes is extremely heavy. Add to this, that the latest export figures show a record movement and that immigration was never heavier, and it is plain why the railways, at the present time, are not complaining of a diminution in traffic movements. In fact roads in all sections are reporting more than an average business, and the movement of loaded cars has seldom, if ever, been exceeded at this season. Substantial gains have been made over last year in grain, coal and miscellaneous freight, although merchandise traffic, at the present time, is disappointing, and shows the effect of the hesitancy in business caused by the influence of tariff developments at Washington. With the harvesting of the big grain crops, however, and the stimulation this

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will give to trade in all its ramifications, it is confidently predicted that the business hesitancy is likely to decrease as Fall advances and that merchandise traffic will see a distinct improvement.

The railroads have a real problem to face in meeting the traffic conditions of the Fall. Already, in a few sections, there is noticeable some scarcity in box cars and the coal car situation is one which is causing those who appreciate the outlook, to wonder what the situation will be in the course of the next few months. Railroads have already begun to accumulate cars in the southwest to take care of the movement of the new grain, and complaints from other sections are to be expected more or less, from now on.

Western railway officials generally, take an optimistic view of future developments, so far as traffic is concerned. Their personal investigations, almost without exception, have shown the grain crops to be in good condition and the acreage planted large. While they recognize a certain amount of caution in business activities, it is appreciated that this condition is likely to improve as the result of an increase in general prosperity in agricultural sections.

Record May Exports.—According to a statement issued by the Bureau of Foreign and Domestic Commerce, Department of Commerce, the exports of the United States in May exceeded by nearly $20,000,000 the high record total for May of any earlier year, being $194,593,071 against $175,380,058, the highest record for that month in any earlier year.

Imports during May showed a marked decline being $133,466,450, against $155,697,886 in May last year, the high record for that month in any preceding year, but exceeding May imports in any year except 1912.

Government Crop Estimates.—As was generally expected, the Government crop report of last month showed deterioration in the leading winter wheat States. The report also showed, however, that in spite of this deterioration caused by hot winds and dry weather, the latter part of May, the total yield would probably be one of the largest produced. The yield of winter wheat to June 1st is placed at 492,000,000 bushels against approximately 400,000,000 harvested last year. Spring wheat acreage has also reduced somewhat, although the condition of the crop is about equal to the average. This promises a crop of about 252,000,000 bushels against one of 330,000,000 for last year, although it should be remembered that the estimate a year ago was only 265,000,000 bushels. The acreage in oats, according to this latest report, shows a remarkable increase, being 38,341,000 acres against 37,916,000 planted last year.

Cotton Acreage Estimate.—Government's next cotton acreage report is not due until July 3rd at noon, but meanwhile estimates of larger acreage are being made from private sources, which indicate that this may be a season of a new maximum. The "Financial Chronicle's" estimate just published, of 38,573,441 acres for the season, or 3.20 per cent larger than its estimated acreage of 1912, exceeds any other private estimate this season. The "Chronicle's" acreage estimate last year of 37,377,000 acres was 2,611,000 acres larger than the Agricultural Department's estimate of area in cultivation at the end of June, 1912. This official total was 34,766,000 acres. Other private forecasts have ranged from three per cent to seven per cent increase on the latter basis.

May Anthracite Production.—The anthracite trade in May was in a flourishing condition. Nearly 6,000,000 of tons of coal were mined, more than 6,000,000 of tons were consumed, and the coal was sold at practically full prices. This was a great month's business. In May of last year the mines were closed about two-thirds of the month pending the wage settlement, and the total production of coal in that month was but 1,429,000 tons. At the close of May, 1912, after nearly two months of strike the loss in tonnage, as compared with the first five months of 1911, was 9,188,893 tons. This year the production in May shows an increase of 4,566,385 tons over last year, and for five months an increase of 8,976,474 tons. From this time on the production of anthracite coal will compare, until the end of the calendar year, with the largest output ever reported.

Lake Commerce Increases.—The statistical report of lake commerce through the canals at Sault Ste. Marie, Michigan and Ontario for the month of May shows an increase of 27 per cent over the corresponding month of 1912, as shown by the following official report:

EAST BOUND.

Articles.	1913. Total.	1912. Total.
Copper, short tons	17,857	18,045
Grain, bushels	14,955,458	11,837,501
Building stone, short tons	.....	2,250
Flour, barrels	1,325,221	937,080
Iron ore, short tons	7,015,626	5,513,399
Pig iron, short tons	3,759	.....
Lumber, M. ft., B. M.	77,347	68,250
Wheat, bushels	22,675,972	34,573,511
General mdse., short tons	44,169	25,705
Passengers	1,658	1,622

WEST BOUND.

Coal, hard, short tons	411,345	17,848
Coal, soft, short tons	2,376,403	1,606,243
Manfd. iron, short tons	57,552	101,068
Iron ore, short tons	.....	500
Salt, barrels	174,138	219,022
General mdse., short tons	172,633	147,292
Passengers	1,662	1,937

SUMMARY.

Vessel passages	3,185	3,247
Registered tonnage, net	8,186,064	7,772,363
Freight—		
East bound, short tons	8,332,178	7,031,058
West bound, short tons	3,044,017	1,905,635
Total freight, short tons	11,376,195	8,936,693

Immigration During April.—According to the monthly bulletin of the Bureau of Immigration, there was admitted into this country in the month of April a total of 136,371 aliens, against 96,958 in March, and 99,839 in April, 1912. This month's total was the largest of any single month since March, 1910. Immigration of aliens for a series of months, compared with previous years, follows. The appended table is republished from these columns of yesterday for reference:

	1913.	1912.	1911.	1910.
April	136,371	99,371	98,036	135,544
March	96,958	91,185	81,687	136,745
February	59,156	45,380	42,826	57,980
January	46,441	38,453	36,361	50,242

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	1912.	1911.	1910.	1909.
December	76,315	61,626	59,481	68,711
November	94,739	61,765	74,353	74,353
October	108,300	69,418	83,805	83,805
September	105,611	62,599	83,931	83,931
August	82,377	50,110	78,574	78,574
July	78,101	51,737	73,153	73,153
June	92,425	71,019	105,025	105,025
May	113,635	95,361	133,544	133,544

Heavy Ore Shipments.—The shipment of ore the past month exceeded those of any previous month in the history of the ore traffic. The movement of Lake Superior ore by water amounted to 7,284,212 tons and the total movement to June 1st, was 8,150,599 tons. Shipments to June 1st were on the basis of 49 million tons at least. Those who are close to the iron ore traffic here believe that June shipments will total 8,000,000 tons during 1912. The Shipments during June, July, August and September averaged better than 7,550,000 tons a month. The highest figures that have been predicted for the season of 1913 have been 50,000,000 tons.

Western Passenger Association Fixes Convention Fares.—In pursuance of a policy agreed upon some time ago, railroads connected with the Western Passenger Association, have decided to charge a uniform fare of two cents a mile in each direction to conventions in western territory this year. A rule also was adopted providing for the publishing of a notice in passenger tariffs that railroads will not grant a refund for lost or stolen tickets except in cases where a satisfactory showing is made that such tickets have not been used.

Statement of Car Surplusses and Shortages.—The latest statement of the American Railway Association on the car movements of the country, shows that on June 14th, there was a total surplus of 71,126 cars as compared with a surplus of 60,291 cars on May 31, 1913 and 73,464 cars on June 20, 1912. Compared with the preceding period there is an increase in the total surplus of 10,835 cars of which 9,331 were box cars, 100 flat cars and 1,907 miscellaneous cars. There was also a decrease of 503 in coal car surplus. The total shortage on June 14th, was 7,199 cars as compared with 9,383 on May 31st, and 5,746 on June 20, 1912.

Demurrage Charges Altered.—The American Railway Association has adopted the report of its committee recommending changes in the association's rules regarding per diem and demurrage charges.

The change made in the per diem rate regulation raises the charge from flat rate of 45 cents per day the year round to one of 45 cents per car day during the months from March to August inclusive and a rate of 75 cents per car day during the months of September to February, inclusive.

The flat demurrage charge the year round has been $1 per car day after expiration of the free time allowed. The amendment to this rule calls for the charge of $1 per car day after the expiration of free time for the months of March to August inclusive and the charge of $2 per car day during the months of September to February inclusive.

Livestock in Transit.—In connection with the enforcement of the 28-hour law the Bureau of Animal Industry has made investigation of feeding, watering and resting of cattle, sheep, swine and other animals while in the course of interstate transportation. The results of this investigation and the conclusions based thereon have been announced indicating the views of the department of agriculture as to the minimum requirements of the law as follows:

"The amount of feed which should be given to different classes of animals varies with the length of time between feedings and the weights of the animals. For each twenty-four hours the ration for horses and cattle should not be less than 1¼ pounds of hay to each hundredweight of animal; for sheep, not less than 1½ pounds of hay to each hundredweight of animal, and for hogs, not less than one pound of shelled corn, or its equivalent in ear corn or other grain, to each hundredweight of animal, or periods greater or less than twenty-four hours the ration should be greater or less, respectively, in the same proportion.

"The only practicable methods for railroads to transport animals, other than hogs, without unloading during each period prescribed by the statute for rest, water and feeding, are in 'palace' or similar stock cars and with emigrant outfits. There are cases in which exceptional facilities complying with the law make unloading unnecessary; for instance, specially equipped cars conveying show animals and blooded stock."

Increased Efficiency on the 'Frisco.—The following summary of the operating statistics for the St. Louis & San Francisco Railroad, the St. Louis & San Francisco Railroad of Texas, Fort Worth & Rio Grande, Paris & Great Northern and Brownwood North and South, for the year ending June 30, 1912, as compared with the year ending June 30, 1905, will be of interest to all in the service.

A thirty per cent. increase in freight traffic (net and gross ton miles of revenue freight) per mile of line handled as compared with a "decrease" of eight per cent. in train miles.

Gross earnings per freight train mile increased 29.5 per cent., although earnings per ton mile increased less than one per cent.

The gain noted in the above paragraph is the direct result of the increased efficiency in operation referred to in the first paragraph.

A further striking illustration of the increased efficiency which is being attained on these lines is the showing of increased utilization of motive power. The potential tractive effort per locomotive increased 13 per cent. in the seven years since 1905 while the average train hauled a load 32 per cent. greater in 1912, than in 1905.

Credit Notice.

IN the May issue of the "Railway World," there appeared an article descriptive of the railway terminals at Port Arthur and of railway developments in Canada during 1912. This material was procured through the courtesy of the "Canadian Railway" and "Marine World," to whom credit should have been given for its employment.

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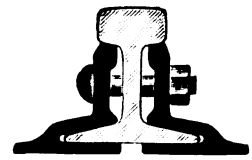

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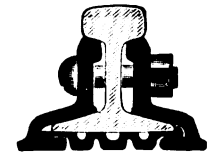

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DIVIDEND NOTICES.

OFFICE OF THE UNITED GAS IMPROVEMENT COM-

pany, N. W. Corner Broad and Arch Sts. Philadelphia, June 11, 1913.

The Directors have this day declared a quarterly dividend of two per cent ($1.00 per share), payable July 15, 1913, to stockholders of record at the close of business June 30, 1913. Checks will be mailed.

LEWIS LILLIE, Treasurer.

THE NORTHERN CENTRAL RY. CO.

Baltimore, June 10, 1913.

The Board of Directors has this day declared a semi-annual dividend of four per cent. ($2.00 per share) upon the Capital Stock, payable on and after July 15, 1913, to stockholders as registered June 30, 1913. Checks will be mailed to stockholders who have filed permanent dividend orders.

JAMES F. FAHNESTOCK, Treasurer.

LEHIGH VALLEY RAILROAD COMPANY.

Philadelphia, June 18, 1913.

The Board of Directors of the Lehigh Valley Railroad Company have this day declared a semi-annual dividend of five per cent. (or $2.50 per share) on its common stock to stockholders of record, June 28, 1913; and a semi-annual dividend of five per cent. (or $2.50 per share) on its preferred stock to stockholders of record, June 28, 1913; both payable July 12, 1913.

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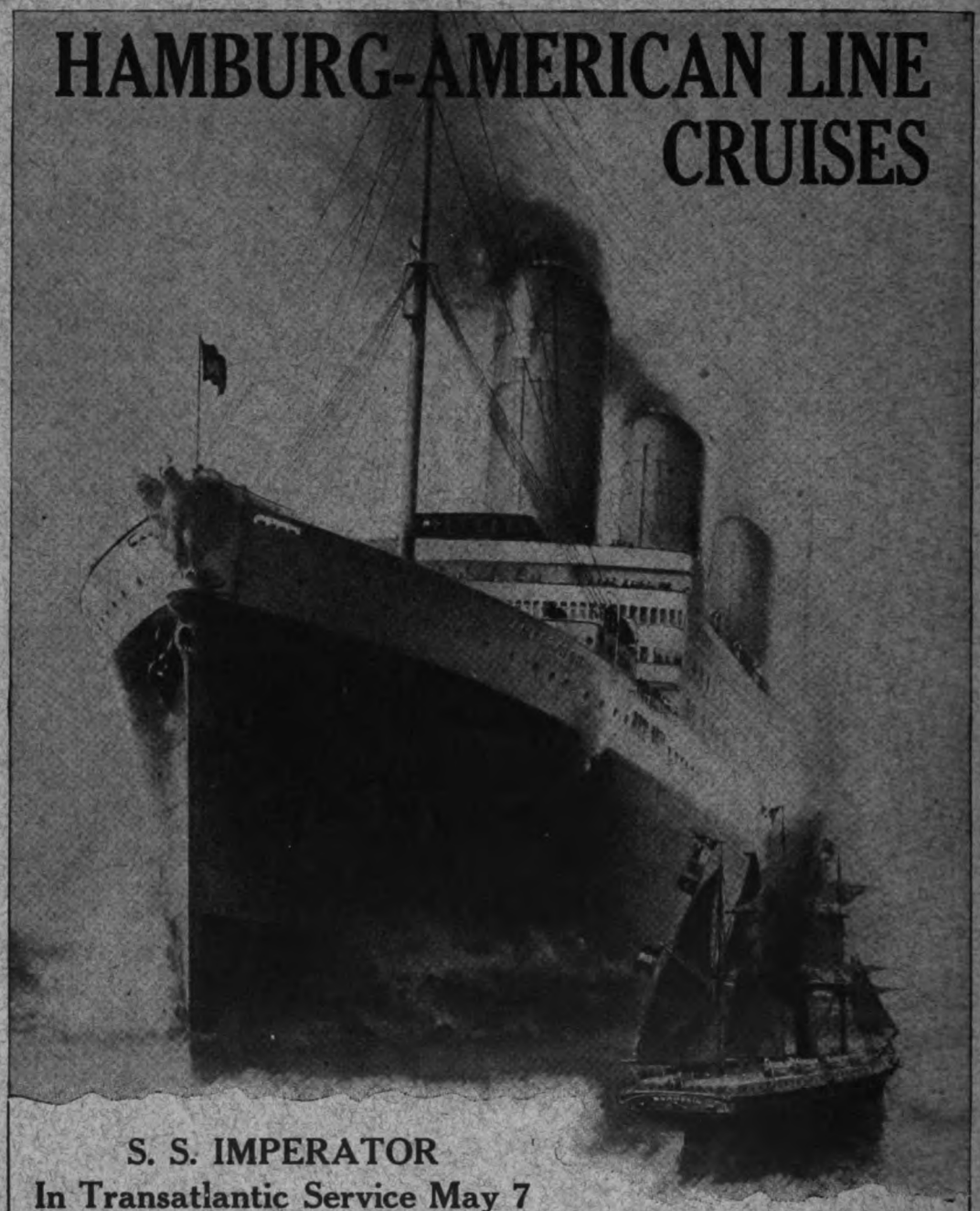

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A MONTHLY JOURNAL (successor to Railway World, a weekly publication) designed to present an accurate and comprehensive review of current events pertaining to Transportation, Commerce and Finance and to afford a medium for the development of a clearer understanding of the mutuality of interest which exists between those who employ and those who operate the railways.

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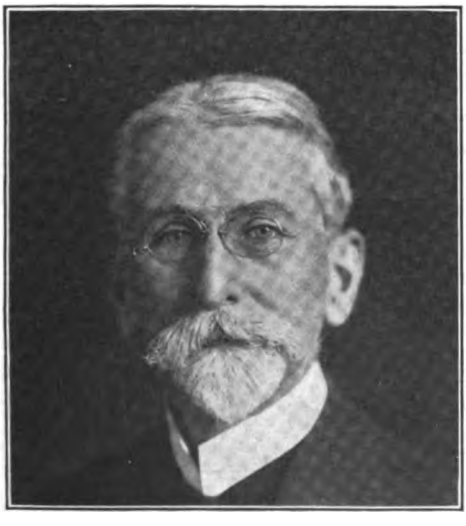
Railway World

VOL. LVII. AUGUST, 1913 No. 8

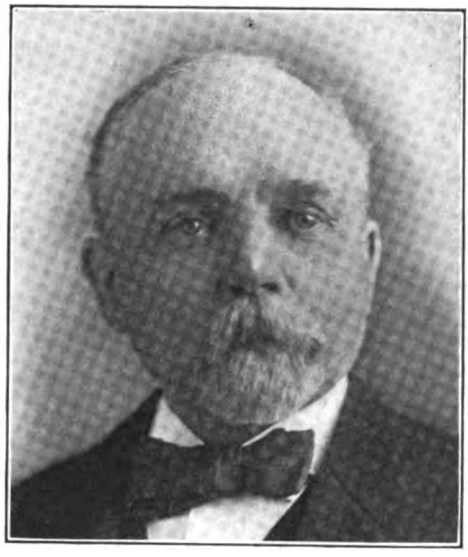
Important Developments in the Transportation Field

ARBITRATING THE WAGE QUESTION

The threatened strike of the railway trainmen took its usual course of preliminary conference, presentation of demands, refusal of demands, taking a strike vote, authorization of a strike, appeal to the political powers, and final reference of the controversy to arbitration. Congress in this emergency acted with commendable promptness. Both parties to railway labor controversies have long been dissatisfied with the arbitration provisions of the Erdman Act. The board established by this Act, in the opinion of the railroad representatives, always took too much from them while the labor representatives declared that it did not go far enough. Under the law there has been created the United States Board of Mediation and Conciliation, to consist of a federal commissioner of mediation and conciliation, and two other officials of the Government to be designated by the president. This Board, upon appeal from either party, can intervene in a railway labor dispute, and will first use its best efforts by mediation and conciliation to bring the opposing parties to an agreement. If this attempt is unsuccessful, the Board will attempt to induce the parties to submit their controversies to arbitration, and if this course is accepted special boards of either three or six mediators will be chosen by the railroads and their employes. The Board is superior to the machinery provided by the Erdman Act, in that it is an impartial tribunal, permanent in character and, supposedly, not swayed by preferences and prejudices for either side, whereas under the Erdman Act the final decision was placed in the hands of one man.



WILLIAM L. CHAMBERS,
who has been appointed Chief Commissioner of the Board of Mediation and Conciliation.



MARTIN A. KNAPP,
Presiding Judge of the Commerce Court, who has been appointed a member of the Board.

Under the law for which Senator Newlands, of Nevada, stood sponsor, the mediation board will act as the unit and furthermore will have no work of arbitration,—no final decisions to make. Its only function,, as its name implies, is to mediate and conciliate, and if mediation and conciliation fails, it co-operates with the contending parties to establish an arbitration board of three or six members, as occasion requires.

Nothing is more certain than that if the board uses its really great power, and the prestige which its permanent constitution and the high purpose which it was appointed to serve, the arbitration provisions of the

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G. W. W. HANGER,

Who has been made Mr. Chambers assistant on the Board of Mediation and Conciliation.

Act will not be often resorted to. Under the name of a Board of Conciliation and Mediation the tribunal established by the Erdman Act is, in fact, a permanent tribunal of arbitration before which railways and railway employes must present their case, and whose findings and recommendations, although they will not have the force of law, and although the parties to the various controversies will not have previously agreed to abide by these suggestions, will in time come to be backed up by the irresistible force of public opinion, before whom the strongest corporation and the most arrogant labor organizations must alike bow in submission.

The personnel of the new Board commands confidence. The chief commissioner is Judge William L. Chambers, of the District of Columbia, with G. W. W. Hanger as his assistant, Judge Martin A. Knapp, of the United States Commerce Court, and Royal Meeker, of the Bureau of Labor Statistics. No fault can be found with the selection of Judges Chambers and Knapp, although the order might properly have been reversed. Both are men of judicial temperament who have had considerable experience, especially Judge Knapp, in the settlement of labor difficulties.

Immediately after the appointment of the Board of Mediation and Conciliation, the Conference Committee of Railway Managers indicated their willingness to leave with the Board the decision as to which questions are to be submitted for arbitration. It had first been feared that the railroads would insist on the submission of a list of eight proposed changes in existing rates of pay and working conditions, in addition to the 18 demands made by the employes. It is believed also, although no definite statement to this effect is contained in the official communications, that the railroads, when final stand came, were al- decision, even if it rules out all but the trainmen's demands.

An indication of the attitude of railroad officials toward the new law is contained in an interview with President Willard, of the Baltimore and Ohio, in which he said:

> The Newlands-Clayton amendment to the Erdman Act met with the approval of the labor leaders and railroad executives, and with some amendments which were discussed and agreed to appeared to meet with the approval of those who attended the conference.
>
> The suggestion of the railroads in conducting the negotiations with the labor organizations during the various movements for increased wages in recent years has been that while the Erdman Act now in force was passed with a view to avoiding differences between employer and employe, it did not provide sufficient representation for the third party in interest—namely, the public. This the Newlands-Clayton Act will accomplish.

The appointment of the Board of Mediation and Conciliation is, we hope, the first step in securing fair treatment for the railroads in these labor controversies. Up to this point the railroads have always lost because their directors would not take the re-

HON. SETH LOW,

President of the National Civic Federation, who played a prominent part in the preparation and framing of the legislation which resulted in the creation of the United States Board of Mediation and Conciliation.

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ELISHA LEE,
Assistant to the Manager of the Pennsylvania Railroad, who will present the Railroad's side of the question before the Board of Mediation and Conciliation.

sponsibility, which the labor leaders were always willing to assume, of inflicting an infinite amount of loss, suffering and damage upon the country by allowing a strike to be called. No matter how exorbitant and grossly unjust the demands of railway labor might be—and they have nearly always merited this characterization—the roads, when final stand came, were always forced by a sense of public duty and responsibility for the interests of the nation, to concede the point of arbitration. Out of arbitration the men, in nearly all cases, gained perhaps not what they asked for, but usually more than they expected. Take, for example, the present controversy. The conductors and trainmen employed by the railroads in Official Classification territory have asked for increases in pay of $17,000,000, in spite of the fact that they received increases of $30,000,000 in 1910, an advance of 50 per cent over the rates of wages which they were formerly receiving. As the railroads show in their public statement, if the increases now asked for by the trainmen and conductors were granted, including the additions made to the pay of engineers and firemen, in three years the increases in the compensation of railway labor in this territory would amount to $52,000,000 per annum, which is equivalent to placing on these properties a lien of $1,040,000,000 of five per cent securities, having preference over first mortgage bonds. The situation indicated by these ever-recurring and increasing demands is intolerable. No limit is presented to the demands of railway labor save the operating expenses of the railroads. Up to this point, if public opinion does not interfere, they can press their demand. It is true that long before this point was reached public opinion would interfere, and would save the railroads from bankruptcy. It is not so certain, however, that if the destroying force of the railway brotherhoods is not checked that serious reductions in dividends can be prevented, and it is certain that unless the share of railway labor in railway earnings is kept within reasonable bounds, the quality of service performed by the railroads for the public will seriously suffer. It is not without significance that many prominent capitalists are withdrawing from railway securities, and putting their money into real estate or manufacturing enterprise. Until the problem of railway labor is settled, we do not hesitate to say that the position of railway investments, looked at as a whole, is by no means secure. The present low prices which standard railway securities are selling reflects more than anything else the mistrust on the part of investors as to the share which railway labor will take out of railway profits.

It is not to be thought of that this situation should endure. The permanent welfare and the future prosperity of the American people are bound up in its satisfactory solution. No one denies that railway labor

W. W. ATTERBURY,
Vice-President of the Pennsylvania Railroad, who with Vice-President Smith, of the New York Central Lines, will represent the railroads in the consideration of the trainmen's wage question.

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WILLIAM B. WILSON,
Commissioner of Labor who failed in an effort to place the head of the new board under the control of the Department of Labor.

who are conversant with the facts know is entitled to fair compensation. Those that the compensation of railway labor, measured by any standard which may be chosen, cost of living, wages in similar occupations, amount of preparation required and severity of employment, is already more than liberal. The leaders of organized railway labor are, of course, not satisfied with their past achievements. The higher they can force wages and the more they can modify hours of labor and working conditions in the interest of those whom they represent, the greater is the prestige which they enjoy and the more secure their position. In every controversy they know they march to certain victory. They know and their antagonist knows that he is beaten before a shot is fired. It is almost too much to expect of poor human nature to look for moderation in the demands of railway labor under these circumstances. It is time that the public interest in this controversy should be asserted. The public interest is being sacrificed and public welfare is being jeopardized by its continuance. Aside from the paralysis of railway enterprise and the inability of the railroads to give the best service with their present facilities, both of which are traceable, in large measure, to the uncertainty of the railway labor situation, there is ever present danger which a wrong move on the part of either contestant might convert into a terrible reality of a general railway strike. In the old fable, the false cry of "Wolf, wolf," was always raised, but eventually, it will be remembered, the wolf came. So in the railway labor situation. The cry of "strike" has been so often brought forward with its dreadful implication, that it has largely ceased to terrify. Eventually, however, if no peaceable method of solution can be discovered, the railroads will be forced to fight, and when that time comes the country must pay the penalty.

In our opinion, the way to a permanent solution of the railway labor problem has been opened by the appointment of this permanent tribunal. For the first time the interests of the public have permanent and authoritative representation. The claims of the parties in controversy can for the first time be judicially reviewed. The recommendation and findings of this board, especially as its authority and prestige grows with the experience of its members, will have extraordinary influence in formulating public opinion, hitherto uninformed in these matters. It is not too much to hope that out of the deliberation of this tribunal will come the establishment of a standard by which railway wages can be determined, which will be fair to both parties.

FINAL DISSOLUTION PLANS OF HARRIMAN MERGER

The Union Pacific-Southern Pacific dissolution plan has been finally approved. The leading features of the plan are as follows, as embodied in the decree of the Circuit Court: First, 382,924 shares of Southern Pacific stock are exchanged for 425,472 shares of Baltimore and Ohio stock owned by the Pennsylvania Railroad Company. Second, the Central Trust Company of New York, as trustee, is made a party to the plan and is appointed to receive and hold as the depositary of the court, subject to the provisions of the decree, all shares of Southern Pacific stock which may be transferred to it under the plan. Third, the shares of Southern Pacific now held by the Oregon Short Line, remaining after the above exchange with the Pennsylvania is consummated, namely 883,576 shares, are to be transferred to the trustee and registered in its name on the books of the Southern Pacific Company, the trustee shall collect all dividends accruing on this stock. Fourth, prior to November 1, 1913, the Union Pacific and the Oregon Short Line shall offer to the preferred and common stockholders of the former the right to subscribe for certificates of interest issued by the trustee in

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the Southern Pacific shares held by the trustee, substantially in the proportion of their respective holdings. The price and other terms shall be prescribed by the Union Pacific, subject to the approval of the court. Neither the Union Pacific, the Oregon Short Line, nor any corporation controlled by either, nor any person acting in the interest of either, is allowed to acquire any of these certificates. Fifth, the voting power of the stock is transferred by proxy issued on demand to the trustees to the holders of the certificates, provided such holder shall make affidavit that he is not the holder of any shares in the Union Pacific Railroad Company. The trustee shall collect the dividends on Southern Pacific stock and distribute these pro rata to the holders of the certificates.

This plan has met with general approval. We have already commented on the part which the Pennsylvania Railroad took in the matter. Its offer was dictated solely by considerations of public interest. It exchanged one investment for another of equal value, and it removes possible objection to the holding of the first investment on the part of the Department of Justice. As the Attorney General said in his statement commending the plan to the consideration of the court:

> Moreover it divests the Pennsylvania Railroad Company of a large amount of capital stock of an active competitor—the Baltimore and Ohio Railroad Company—and thereby remedies a highly objectionable condition. So far as I am able to ascertain, such exchange would not result in creating any new combination in restraint of trade nor any other condition in violation of existing law. Should the exchange be made, the Union Pacific Railroad Company would then own 38.66 per cent of the capital stock of the Baltimore and Ohio Railroad Company and the Pennsylvania Railroad Company would own 14 per cent of the capital stock of the Southern Pacific Company.

The plan of trusteeing the stock and barring all voting rights to holders of trust certificates who were also holders of Union Pacific stock is admirable in its simplicity. The Attorney General said:

> These provisions put the disposition of such shares under the direction of the Court. The proposal is to transfer them to a trust company, which shall become a party to the proceeding and in effect an arm of the Court. The trustee has no power to vote the shares except when and as directed by the Court. Union Pacific stockholders will be entitled to subscribe for certificates of interest issued by the trust company representing the shares in its custody, payment to be made either in full at the time of subscription or $25 per share then and the remainder within twelve months with interest at six per cent. But the holders will have no voting rights and will receive no dividends until their certificates are converted into stock of the Southern Pacific Company and such conversion can only be made upon affidavit that the applicant owns no shares of the Union Pacific Railroad Company and is not acting for or on behalf of any stockholders thereof or in concert agreement or understanding with any other person, firm or corporation for the control of the Southern Pacific Company in the interest of the Union Pacific Railway Company, but in his own behalf in good faith. Further, the holders of such certificates can receive no interest on the dividends collected and held by the trustee.

JAMES MCREYNOLDS,
Attorney General of the United States.

The amount of trust certificates to be offered, $88,000,000, may not all be put out at once but will probably be placed at intervals during the two and one-half years which is given to the Trust Company to dispose of it. Nothing but favorable comment has been heard in reference to the plan. Those familiar with the affairs of the Harriman lines do not feel apprehensive that the Union Pacific and Southern Pacific will, under separate control, affect unfavorably each other's earnings. The Union Pacific, in particular, will profit by the transaction, since it will be placed in control of probably $100,000,000 with which to realize the ambitious plan for the extension and improvement of its lines which have been formed by the management. Mr. Julius Kruttschnitt, chairman of the Southern Pacific Company, in denying a report that the Southern Pacific is prepared to open its fight for business with the Union Pacific emphatically denied the rumor. He said:

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"You must remember that the routing of business by the railroads depends very largely upon its geographical position. If you will consult the railroad map you will note that in Southern California there is a large amount of business which naturally moves over the Sunset lines rather than up to San Francisco and over the Union Pacific. At the same time in the northern part of California there is a certain amount of business which naturally has its outlet over the Central Pacific and Union lines. Today shippers decide very largely which way their freight shall be carried, and it would be a rather difficult matter to exert very much influence with them with regard to the routing of their products.

"It is hardly natural to expect that the Southern Pacific would attempt to divert business from the Central Pacific, which road is now controlled by it and which has the Western Pacific as a competitor. I desire to state that there will be no change in this respect, but that business which has a natural outlet over the Central will be shipped over that road, while that in the lower part of California having a natural outlet over the Sunset lines will be consigned to that portion of the system for shipment to the East.

"I do not expect that the unmerging of the Union and Southern Pacific will have much effect on the earnings of the Southern. The company's business has reached such large proportions that nothing short of the most unusual developments will have any appreciable effect on the road's earnings. I might liken the company to a wave striking the Imperator, the inertia being too great for it to have much effect on the boat. Take for instance the destruction of the orange crop in California, together with the destruction of the cane crop in Louisiana, both of which figured in the operations of the company for the twelve months ended June 30 last. These two developments naturally cost the company the loss of a very large tonnage and earnings, but you will note that earnings for the year exhibited very large increases in both gross and net."

THE FREIGHT RATE INVESTIGATION

The Interstate Commerce Commission has issued an amended order providing for an investigation into the proposed increase of freight rates by the Eastern railroad. An inquiry is ordered into the following points:

Do the present rates of transportation yield adequate revenues to common carriers by railroad operating in official classification territory?

If not, what general course may carriers pursue to meet the situation?

It is further ordered, that in the prosecution of this inquiry, opportunity shall be afforded to interested carriers and to the public generally to prevent such facts and arguments as may be desired; that common carriers by railroad operating in official classification territory are hereby made parties to this proceeding and shall be served with notice thereof and that subsequent notices shall be given to them and to the public generally of such hearings as may be had.

The Commission is of the opinion "from a consideration of the allegations of the petition, that the need of and justification for additional revenue should be at the present time further examined." The decision to investigate was not unanimous but was carried by a bare majority, and in connection with the issuance of the order the Commission makes the following significant observations:

(1) The fact that we have decided further to investigate this subject must not be taken as an intimation that the Commission has reached the conclusion that revenues are inadequate or that rates should be advanced. Upon this question no opinion has been formed.

(2) That the statute gives to any party the right to attack by complaint any rate, and no general conclusion which the Commission may reach and announce in this investigation can affect that right.

In spite of the guarded and qualified language of the order, the railroads have won a distinct victory. As the RAILWAY WORLD brought out in a special article upon this subject, measured by the standards set up in the former investigation, the railroads in Official Classification territory are plainly entitled to a substantial increase in rates. Moreover, public sentiment upon this matter of rate increases is much better informed than two years ago and is consequently much more favorable to the railroads. For example, Mr. J. Ogden Armour, whose concern is one of the largest shippers in the United States, states the opinion of the large and enlightened shippers as follows:

All rates on railroads should be increased and at once. They are far too low for the investors to get a fair return for their investment, and increases in the rates would result in an immediate improvement in all branches of trade and commerce.

Everybody should be willing to have the rates raised, when all would find improvement and everybody would profit thereby. There is too much interference in this country by the Government in the manner in which the railroads conduct their business and the rates for the carriage of all sorts of freight are far too low. I, as a ship-

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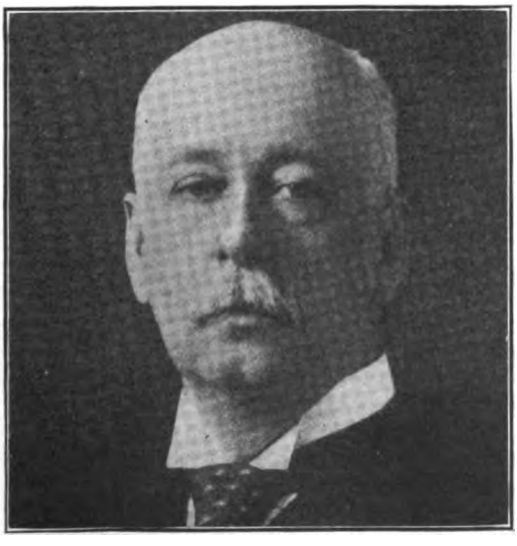
per, would like to see the rates increased and all men of business ought to feel that way.

The railroads need not, we think, have any fear of the outcome of such an investigation. Their position is very plain. They are willing to spend large sums of money in enlarging their facilities and improving their service, in other words, in increasing their service to the public as common carriers. They ask, however, that the public, which is to derive nearly all the benefit from this expenditure, shall through its representative, the Interstate Commerce Commission, allow them to make the very moderate increase in rates which is necessary in order that revenues may be raised to the point which will permit the financing of these extensions by the sale of the necessary amount of security. Presented in this manner, and the case of the railroads will be so presented before the Interstate Commerce Commission, it is, in our opinion, improbable that the petition of the railroads will be denied.

THE COMMISSION'S REPORT ON THE NEW HAVEN

As was expected the investigation of the New Haven by the Interstate Commerce Commission severely condemned the management of that company. The conclusion reached by the investigation which was conducted under the direction of Commissioner Prouty, is as follows:

The "Outside" financial management wasteful in extreme.



CHARLES S. MELLEN,
the retiring president of the New Haven System.

HOWARD ELLIOTT,
Who leaves the presidency of the Great Northern to become the Chief Executive of the New Haven System.

Could have paid 8 per cent in 1912.

Agreement with Boston and Albany should be cancelled.

New Haven should divest itself of its trolley lines.

Boston and Maine's merger with New Haven, if permitted, will result in monopoly in New England.

Passenger train service of both roads better than any other line's entering New York.

Boston and Maine's freight service less reliable than Pennsylvania's or Baltimore and Ohio's.

Passenger fares in New England more favorable to local public than in any other part of the United States.

New Haven management must act prudently within the letter and spirit of the law to better railroad conditions in New England.

Of especial interest is the Commissioner's comment on the outside financial operation of the New Haven. The report says that $204,000,000 was in nine years spent in operations outside the sphere of railroad transportation. Most of these expenditures have not as yet proven profitable.

Our general conclusion is that the outside financial operations of the New Haven Company for the last nine years have been wasteful in the extreme and that the methods by which those operations have been conducted are unnecessarily involved and complex. The reason for this is as apparent as the fact itself. The present management of that company started out with the purpose of controlling the transportation facilities of New England. In the accomplishment of this purpose it bought what must be had and paid what must be paid. To this purpose and its attempted execution can be traced every one of these financial misfortunes and derelictions.

It seems proper to add that while the financial operations of this company have resulted in

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heavy losses, there is nothing to indicate that its solvency has been impaired. The company has expended in the last nine years upon its road and equipment over $50,000 a mile, a sum almost equal to the average capitalization of the railroads of the United States at the beginning of that period. While this expenditure has been made with a free hand, there is nothing to show that it has not been wisely made and much to indicate that the result has fully justified the outlay. The outside properties of the New Haven have been acquired at extravagant prices. They are for the most part of substantial value, and in many instances are a kind of property the value of which should improve. The financial condition of the company calls for careful consideration and prudent action, but gives no occasion for hysteria.

On the general question of the alleged inefficiency of the freight and passenger service rendered by the New Haven and the Boston and Maine, the report is by no means so positive in condemnation. The passenger service of both lines are approved, and Commissioner Prouty says that New England should be well satisfied, on the whole, with the passenger performance of these lines under investigation. The freight service rendered by both companies, especially the Boston and Maine, is condemned, largely on account of slow movement of traffic. The report contains, however, the following significant passage which explains, in part at least, the inability of the former administration of the New Haven to improve the service as was planned and desired:

In discussing the remedy to be applied to the general railroad situation, Commissioner Prouty says:

What is needed first of all to improve the railroad situation in New England, is rest and an opportunity for constructive work. There is much truth in the claim of these carriers that they have been so occupied with investigations and so criticised by the public that no fair opportunity has been given for the operation of their railroad properties. No railroad management can succeed without the support of the public which it serves. It must not be forgotten that the railroad is a public servant in fact as well as in name, and that the service which it renders depends largely upon the treatment which it receives from its master.

The management of the New Haven immediately after the publication of the Commission's report, announced that a meeting of the division and mechanical superintendents had been called to consider the report and recommendation of the Commission relative to recent accidents. Immediate steps, it was stated, would be taken to bring the railroad up to the standard recommended in the Commission's report. At the same time, General Manager Bardo who issued the statement, was emphatic in his claims for the excellence of the passenger service of the New Haven which indeed, as just shown, was approved by the Commission. Says Mr. Bardo:

The Interstate Commerce Commission, in its report upon the financial affairs of the company stated that the New Haven passenger service, aside from safety, is distinctly better than that of any railroad coming into New York. The officials of the company have always believed that the trains are operated under as safe if not safer conditions than any other road in the country, and the record of train accidents upon the New Haven Railroad would seem to warrant this view. In the past ten years the company has carried over 755,000,000 passengers, and had but six train accidents in which passengers have been killed. The total number of deaths resulting from these six accidents is only 29. The passenger traffic of the New Haven Railroad is the densest of any railroad in the country.

The publication of this report was almost coincident with the retirement from the presidency of the New York, New Haven and Hartford of Charles S. Mellen. President Mellen's statement, in retiring from the presidency, was characteristic of the man. It was as follows:

That in his opinion, a condition existed that was full of disquieting possibilities for the New Haven road and its allied properties.

That it was useless to discuss the reasons for or the causes of that condition.

That the condition had to be met, and that the only way it could be met, having proper consideration of the property, was by his resignation.

That everything he had done would be in time justified, but there was a question whether, if he remained to work the problem to the justification, it would not be still further embarrassed. He therefore resigned.

We have previously called attention to the great work which President Mellen did and the much greater work which he attempted to do, in developing the New Haven and Hartford and the Boston and Maine into a unified transportation system which could adequately serve and properly represent the transportation interests of New England. In the course of his administration, as he frankly admitted, he had made mistakes. For some of these mistakes he was alone responsible, in other cases his views and objections had been set aside and overruled. His was, however, the sole public responsibility for whatever was done, and with characteristic frankness and courage he did not hesitate to accept it.

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Most of the work which President Mellen has done will endure. Some things which he did, and whose unwisdom he has himself admitted, most of these involving operations outside the field of railroad transportation, will be undone. Especially is it believed that the large investments of the New Haven in trolley lines will be considerably reduced.

The new president of the New Haven who assumes the duties of his office on September 1 and who will be elected chairman of the Board in October, is Mr. Howard Elliott, formerly president of the Northern Pacific. The keynote of President Elliott's policy in the administration of the New Haven and Hartford is contained in the following extract from a statement issued immediately after his selection by the special committee appointed by the Board:

It is plain, however, that the New Haven and its associated roads are a great instrument of commerce laid out on a broad foundation, but needing much painstaking work and the expenditure of much money to make them entirely adequate and satisfactory to the people they serve.

It is plain, also, that the success or failure of these lines is inter-dependent with the success or failure of many forms of business in the States which the lines serve.

We hear much about conservation in these days, and it is a most important question. The conservation of railroad service is as important to New England as is the conservation of her soil, of her water power, and of her factories. This railroad service can only be conserved by having all who are interested in the welfare of New England fair, prudent, patient, and courageous enough to take a broad, far-sighted view of the whole situation.

No board of directors and no railroad executive can conserve railroad service without being prudent and fair themselves, and without fair and reasonable treatment and support of governmental bodies—fair and reasonable attitude and support of the press and of the traveling and shipping public, and the great army of owners and employes. Unless all these classes are fair, sensible, without prejudice, patient and helpful each to the other, the best results and the results that the public desires, cannot be obtained. Criticism is expected, and fair criticism does good. Unfair attacks waste the mental energy of the officers and break down the esprit de corps of the army of employes.

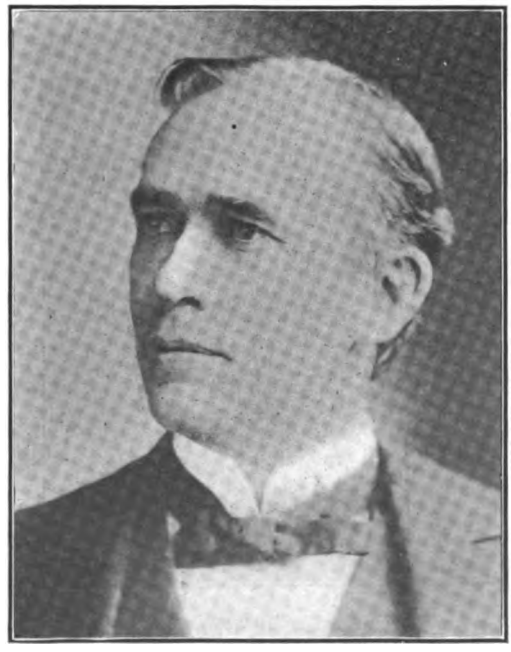
I believe most thoroughly in the fundamental strength of the New England properties, in their ultimate ability to furnish the transportation needed by New England, and in the final good sense and fair judgment of the public. And I believe that the problems now presented to the management and to the public can, must and will be solved.

PROGRESS IN PHYSICAL VALUATION PLANS

Substantial progress is being made with the organization of plans for making a physical valuation of the railroads. Railroad commissioners in fifteen States will co-operate with the Interstate Commerce Commission in making this valuation which will materially reduce

GEORGE B. MCGINTY,

Secretary of the Interstate Commerce Commission, who recently suggested to Congress a method of subdividing the country for Physical Valuation purposes.



CHARLES M. PROUTY,

Interstate Commerce Commissioner having charge of Physical Valuation Plans.

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the joint expense. According to a report which was complete last year, valuations of one or more railroads have been made in twenty States, in most of these, however, there have been no extensive or thorough appraisals or inventories. It is believed that the Interstate Commerce Commission will begin its valuation of the railroads in those sections of the country where the States have made no start. A possible objection to the plan of co-operation is found in the existence of varying standards of valuation among the different States, for the most part the States have made no allowance for intangible values but have devoted their attention to original costs. Marked differences in the standards of cost, however, exist. It will be impossible for the Commission to devise a plan of valuation which will meet the views of all the States. A large amount of data, however, which has been collected by the States, will be available.

INCREASING THE WEIGHT LIMIT OF THE PARCEL POST

The announcement of the Postmaster General that the limit of packages to be transported by parcel post will soon be advanced to 20 pounds, and the confident expectation, based on official utterances, that the limit will be further advanced to 100 pounds, coincides, in point of time, with sweeping reductions by the Interstate Commerce Commission in the rates charged by express companies, the average cut for the entire country is about 16 per cent, which, it is estimated, will reduce the revenues of the express companies about $26,000,000 a year. Practically all rates have been reduced for 50 pounds or less. By prescribing the so-called "Block System" the Commission divides the United States into 950 blocks, each averaging 2,500 square miles. This system will apply between all points in the United States.

This order falls upon the railroads equally with the express companies. It comes at a time, moreover, when the railroads are being seriously discriminated against in the payments for mail carriage. At the present time they are underpaid for the carrying of the mail by at least $15,000,000 a year, a large amount of service being demanded for which no payment whatever is made. This is the substance of a statement issued on July 27th by the Railway Mail Pay Committee of the 264 principal American railroads operating over 218,000 miles of line. The substance of this statement is as follows:

ALBERT BURLESON,

U. S. Postmaster General who has been criticised by certain members of Congress for extending the scope of the Parcel Post.

To carry the people's mail quickly, safely and frequently is a social obligation which the railroads freely concede. It is a service voluntarily performed, for no law compels a railroad company to carry mails unless it contracts to do so. The courts hold, however, that if the railroads do contract they must do so on terms named by the Government.

Though surrounded by these anomalous conditions, the railroads have without stint placed their resources at the disposal of the nation to develop the transportation of mails to the highest possible state of efficiency. This service has been paid for at a price fixed by the Government, a price from which the carriers have had no appeal.

The United States Government in 1912 paid the railways $51,697,374.49 for carrying mail. This was about 20.95 per cent of all postal revenue. In 1901 the railways had received 34 per cent of the postal revenue. In the same year, 1901, the Joint Committee to Investigate the Postal Service, of which Senator Wolcott was chairman, reported to Congress its opinion that "the prices now paid to the railroads for the transportation of the mails are not excessive." Yet in 1907, the Postmaster General, by administrative order, reduced railway mail pay by nearly $5,000,000—about 10 per cent—and Congress cut off about 2 per cent more by reductions in rates of pay for carrying the mails and for the use of postal cars.

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Contemporary Opinion

Railway Mail Pay and the Parcel Post.

CONSIDERABLE space is given in this issue to the question of Railway Mail Pay. Newspaper editors, in many instances, are showing their sympathy with the railway managers' efforts to have this matter adjusted on an equitable basis. As the "Baltimore Sun" puts it:

"The railroad managers' committee on railway mail pay, of which Ralph Peters, president of the Long Island Railroad, is chairman, has issued a statement saying that the railroads are underpaid at least $15,000,000 a year for carrying the mails. They object not so much to the standard of measurement as to the fact that they are allegedly called upon to do a great deal of work for which they receive no compensation whatever.

"This is an old controversy, and, in truth, it must be said that the railroads present a strong case. A Congressional Committee of inquiry is now investigating the matter, and the railroad men's statement referred to will be presented to it. It is very important that the matter be settled promptly and fairly, because the railroads, illogically but perhaps naturally, are trying to complicate this case with that of the parcel post and are opposing the changes ordered by Postmaster-General Burleson because, they intimate, they will not be properly paid by the Government for carrying the parcels.

"The two questions, of course, are entirely separate ones, and neither Congress nor the people must allow the railroads or the express companies to tangle the two. But the best way to avoid any possibility of this being done would be for Congress to push the matter of railway mail pay to a conclusion as quickly as possible, and specify payments the justice of which cannot be questioned."

In referring to the recent action of the Postmaster-General in increasing the limit of parcels carried under the parcel post law to twenty pounds, and also reducing the rates in certain instances, the "New York Journal of Commerce" has editorially, in part, the following to say:

"The next move is said to be contemplated for raising the weight limit to 100 pounds with corresponding changes in rates. Like all such ventures in Government business there is a tendency to expand and overdo, and there is really no trustworthy means of testing the financial results. They are mixed up with the indirect expense of buildings and equipment and general government administration, which disguise the effect. The Government is not expected to make a profit in competing for the express and merchandising business, but we need more exact methods of determining cost and efficiency."

One-Sided Arbitration.

THE result of the arbitration of the Eastern trainmen's wage controversy under the Newlands Act, is awaited with unusual interest not only by railroad officials, but by all those interested in the proper economic progress of the country.

An interesting sidelight in this particular controversy has been the demand of the railway managers that certain of their grievances regarding working conditions and wages should also be arbitrated at the time the trainmen's demands are considered. Under considerable pressure, the railroads finally agreed to withdraw their request for the present, but it is not unlikely that they will again demand a hearing, as they justly feel that certain conditions of which they complain would not stand the scrutiny of such a board without relief being granted. As the "Baltimore Sun" puts it:

"The trainmen object to the railroads' proposition to have all questions submitted to the board of arbitration, and not the question of wages alone. But to the dispassionate public some of these other questions, such as that of the full crew, have a very close connection with the fair adjustment of the wage question. We take it that all that the trainmen want is a fair and just settlement of the controversy, and that they would not seek an unfair advantage by insisting on a narrow technicality. If the railroads are to be made to do the fair and square thing, why should the trainmen object to submitting to the same just principle? What is sauce for the railroads ought to be sauce for the trainmen."

On the same subject, the "New York Journal of Commerce" says:

"If the conductors and trainmen of the Eastern railroads think that they ask for only what is fair and reasonable in the demands which they are willing to submit to arbitration under the amended law, why should they object to the railroads presenting their grievances and asking that they be considered by the same board? Are not the railroads entitled to what is fair and reasonable in their payment for the services of their employes, just as they are required to conform to what a Board of Commissioners decide to be just and reasonable in their charges to shippers? Is not a Board of Arbitration constituted as the new law provides as likely to do justice with regard to what the railroads ask for as with regard to what the conductors and trainmen demand?

"The requirements of which the managers complain have been imposed by the unions and conceded to avoid trouble. They involve in some cases full pay where there is not full service and extra pay, even double pay sometimes, differences of compensation where, they allege, there is no reason for them, guarantees which are not justified, and so on. They say that there are 'perquisites' in the service which are not reasonable and which cost the companies a good deal of money without due consideration. Perhaps the managers are wrong about this, and there may be good and sufficient reasons for what the employes claim. That is a matter to be inquired into and adjusted with due regard to just claims on both sides.

"Why not have these matters inquired into as well as those of which the conductors and trainmen complain? The railroads cannot force anything by stopping operation or threatening to do so and they cannot get better pay for their service without the consent of an official Government board, but that is no reason why they should not have fair play. It does not look well

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for the men to insist that the arbitration shall be one sided, that no claims but their own shall be considered. It looks as though they were not confident of the justice of what they have already secured and were not willing to have judgment passed upon it."

The "Buffalo Commercial" pertinently states that the railroads undoubtedly have grievances to arbitrate as well as the men and certainly have the same right to be heard by an impartial tribunal. Continuing along this line of argument, it says:

"Why should any one oppose giving them a hearing? If their claims are just they ought to be recognized and their wrongs righted. If on the other hand, their grievances are not well founded, the Commission in denying them will simply perform one of its statutory duties.

"Railroad men ought to be the last to protest against giving the roads a hearing upon their list of demands. Arbitration is by no means a one-sided proposition. A board of mediation was not created for the simple purpose of resolving the demands of organized labor for better pay and changed working conditions, and all fears expressed that this latest move of roads will prevent arbitration of the pending claims should be dispelled at once. What is fair for one is fair for the other. The reply of the men to the demands of the railroads, if it is a manly and honest one, will not oppose the arbitration of all claims that are presented in good faith and are entitled to adjudication."

Speaking of the questions which the railroads desire arbitrated, the "New York Commercial" says:

"The most important question raised by the railroads is their claim that the wages of brakemen should be reduced to twenty per cent when the railroads are compelled to employ two men to do the work of one under the provisions of 'full crew' laws. The railroads have always contended that these laws impose unnecessary burdens on them and do not add to safety in operating trains. The states which passed these laws gave the railroads no compensation for the added cost, and it is conceivable that these burdens might be piled up to a ruinous extent. The railroads, therefore, seek to establish the principle that when a man does only half the usual amount of work his pay should be reduced.

"The labor lobby was directly responsible for these 'full crew' laws. The design is to give employment to more men and thus increase the numerical strength of the labor unions. Men were to be drawn into these unions by the hope of 'soft snaps,' and the State Legislature passed these laws to catch labor votes without considering the safety of the public or the added burdens of the railroads.

"Other 'soft snaps' will also be ventilated if the railroads are permitted to present their side of the case. One of these is extra mileage without extra time or work, and another is the full day's pay for a short run accompanied by double pay for overtime when a train is delayed. This combination gives the men double time for accidental overtime and no allowance is made when they work part time only."

In considering the question of the demand of the men themselves for increased wages, the "Baltimore Sun" points out that this demand "differs from the similar demands from enginemen and firemen in several respects. One is that the trainmen were given an increase three years ago. It cannot be said, then, that the present movement is intended to bring their wages to an equal basis with those of other railroad employes. Rather, if another increase is to be granted them, all the other employes will be asking additional increases in order to be put on an equality with the trainmen.

"This demand, then, raises in an acute form the question whether the railroads are to be allowed to raise their freight rates in order to compensate them for the increasing sums they are obliged to pay for wages. Fair-minded men are about agreed that the limit has been reached and that the average railroad from now on must either get increased rates or furnish inferior service. In either case the people pay the bill; we should never forget that. The only question is whether we shall pay the bill with our eyes open or shut."

The Freight Rate Inquiry.

THE inquiry by the Interstate Commerce Commission into the justice of the demands by eastern railroads for an increase in their freight rates, has begun under unusually favorable auspices so far as the carriers are concerned. A noticeable leaning towards their side ot the case is evidenced in newspaper editorials, while various commercial and shipping organizations have taken occasion to voice their approval of the necessity for some action being taken whereby the railways can increase their revenues. Discussing this matter editorially, the "Buffalo Commercial" says:

"Announcement that the Interstate Commerce Commission has begun an inquiry into the request of fifty-two railroads to increase freight rates five per cent is encouraging, for the roads will at least have an opportunity to present their side of the case.

"There should be little trouble experienced in convincing the commission that there are good and legitimate reasons for presenting the request, in view of the heavy burdens which have been placed upon the roads by recent legislation and the demands for increased wages which they have granted. Added to these features of the case is the large amount of money which will be required to place road equipment in shape to meet the constantly increasing requirements of the freight carrying business.

"There is a strong public sentiment that the roads are fully justified in their contention that an increase in rates is not only just to shippers, but absolutely necessary if the ability of the roads to handle the rapidly increasing volume of business is to be maintained."

In discussing the various angles to be considered in an investigation and readjustment of this kind, the "Journal of Commerce" points out that:

"The general argument in regard to the need of higher rates to support the credit of at least some of the roads and enable them to raise capital for necessary improvements, is a strong one, but the shippers who are disposed to contest the application appear to be a good deal divided. A point upon which some of them are laying stress relates to what they call a 'horizontal' advance, that is, an advance by a uniform percentage upon all present rates by all the railroads. The question is raised whether the re-

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cent Supreme Court decision, allowing an advance in some of the intrastate rates and refusing it to others on account of differences in the financial condition of the roads will not be a bar. It is contended that the advance asked for might be just and reasonable in some cases and not in others, and that it should be determined in each case with reference to a fair return upon the value of property devoted to public use.'

"This gives prominence to a difficulty which we have already pointed out with reference to the recent rate decisions. There is a good deal of difference in the conditions and necessities of the roads in this eastern 'official classification territory.' It is claimed that some of the stronger roads do not need the advance, while the weaker ones may; but, if it should be allowed to the latter and not to the former, the real effect, in so far as there is competition between the lines, would be to make the strong stronger and the weak weaker by diverting traffic to those upon which the cost of transportation was lowest. Rates have long been adjusted with reference to a certain restraint upon competition to give all a chance to live, though there may be no 'unlawful' agreement or combination. Suppose that plan is abandoned and the roads which most need to increase earnings are allowed to advance rates and the others not. The actual increase of earnings would be likely to accrue where it is not needed rather than where it is, and the last state of the weaker roads would be worst than the first. The tendency of that would be toward bankruptcy and receiverships for some or their consolidation with others, if that were permitted. This forces a new question to the front to which the Commission may have to give serious attention."

The New Haven's New Head.

NEWSPAPER editors, both in New England and elsewhere, are emphatic in their praise of the new executive head of the New Haven, and congratulate both the road and the section of the country through which it operates, for procuring the services of a man whose reputation places him in the front rank of modern, progressive railway officials. As the Boston "Evening Transcript" puts it:

"No selection of a man to invest with the leading responsibility of directing the transportation interests of New England that would better satisfy the public of this section could have been made than has been made. The past record of President Howard Elliott, of the Northern Pacific inspires confidence. The task that he is to undertake is one that involves many burdens and complexities, but we think that the people of New England have reached the point where they will give him their wholehearted co-operation. His training has been broad and his service in previous positions successful. His enunciation of the policy that he proposes to follow in his dealings with the stockholders, the public and the State encourages us to believe that these interested parties under his administration will be the partners that they always should have been.

"The most impressive and encouraging statement that he has made is that 'the laws, rules and regulations laid down by proper governmental authority, will be obeyed,' and if these seem to hamper effectiveness the people will be asked to change them in their own interests, as well as in the interests of the railroads. As has been declared upon high governmental authority, this has not invariably been so in the recent past. We may fully trust Mr. Elliott's sincerity in this matter. We may also trust the genuineness of his interest in New England development. He is a New England man, with strong New England affiliations, even when his duties made him for the time being a westerner. The roads that serve New England will be recognized as New England properties, and their headquarters will be in the metropolis of the section.

"This of itself is a gain upon which our people have reason to felicitate themselves. The direction of our interests is no longer to be at arm's length. Each separate branch of the entire system is to have a separate head while as soon as the by-laws will permit, Mr. Elliott will be invested with general supervision of the whole. This gives promise of a definite fixing of responsibility on all the lines and invites the hope that hereafter there will not be so much left to chance as hitherto. The organization of the New England conference of the States has been a practical and a timely movement. Mr. Elliott will find it not only willing but anxious to cooperate with him in the common purpose which we believe both entertain.

"The new head of our system is probably not entering upon his labors under any delusions, and the confidence he has in himself and his willingness to undertake them are encouraging signs. While he who puts on the harness is not entitled to boast himself as he that taketh it off, there has scarcely been in the history of our transportation industry a more splendid opportunity for constructive service and the rewards and satisfaction that it will bring than New England presents to-day. We must not expect sudden transformations, but if we can see steady progress and right purpose, the public patience will hold out until these attain their consummation."

Panama Possibilities.

THE "New York Commercial" has the following to say with regard to the attitude of European shipping interests and those of this country, concerning the commercial opportunities incident to the opening up of the Panama Canal:

"The announcement that the Panama Canal could be put in operation this fall if necessary, indirectly emphasizes how thoroughly European interests have grasped the meaning of the fairway through the Isthmus. No less than 32 organized steamship companies in Europe have arranged to enter the trade which will use the canal, and among these are some of the strongest factors, financially and in the tonnage of bottoms operated, in the water carrying trade. True, many American lines also have arranged to enter the trans-canal traffic, but apparently the importance of being ready when the canal is opened has not been as thoroughly sensed in America as in Europe. Perhaps the nearness of the picture destroys the perspective.

"Whatever the reason, European ship owners are straining every nerve to be prepared to cargo the largest possible share of the water-borne freights which will supply the demands of the west coast, South and North American trade. In European shipyards more than sixty steam-

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ships are reported under construction for canal services. In American shipyards, how many? Not one-half. Probably not one-third are under way or definitely projected.

"While both North and South America will benefit from the improved facilities to be afforded the west coast, the casual, almost indifferent, attitude of the people of the eastern United States and of the financial marine interests generally, contrasts strongly with the keen determination of Europe to avail itself of the numberless advantages to accrue to those who, as Nathan Bedford Forrest said of the secret of winning battles, 'git thar first with the mostest men.' The wonderful thirty-year transformation of the Argentine will be duplicated along all the west coast of South America. Where now a steamer puts in once a fortnight, steamships will arrive or depart daily, and ports of occasional call will become thriving radii of maritime commerce.

"A few of our business interests are awake, but most of the efforts in evidence appear to be directed toward arousing the other fellow to action rather than toward getting the other fellow to join in the practical working out of plans to add to the number of American steamers which will use the Panama Canal."

The Signing of the Sundry Civil Appropriation Bill.

IN signing the Sundry Civil Appropriation Bill, President Wilson has called forth a general and vigorous condemnation on the part of many newspaper editors throughout the country. This bill, as has been stated in past issues of the "Railway World," contains a rider or proviso, to the effect that no part of the money appropriated for the enforcement of the anti-trust law should be spent in the prosecution of labor organizations or farmers' associations. While it is true that President Wilson signed this bill under protest, newspaper editors see in such action a vacillating attitude and a desire, through class legislation, to appeal to the labor vote of the country. In discussing this class of legislation, the "New York Evening Post" says:

"All general legislation tacked upon an appropriation bill is bad in theory and in effect. So clearly was this recognized by the framers of the New York Constitution that they positively forbade 'riders' of any kind on appropriation bills. If the law is to be changed, let it be done directly and openly, not by trick or covert methods. And the particular rider on the Sundry Civil bill was peculiarly offensive and dangerous, since, in addition to furtively meddling with the anti-trust act, it sought to exempt two classes of citizens from the equal operation of the laws. Mr. Wilson himself frankly declares that this is 'unjustifiable in character and principle.' He adds that if he could veto this item of the bill by itself he would. In our opinion, he should have used his veto in the only way open to him, sent the whole bill back to Congress as Taft did, and raised the issue sharply before the whole country whether legislation of this kind is to be tolerated under a government that professes to know no favored classes."

The "Buffalo Commercial" expresses a great disappointment over the President's action from whom it evidently expected a different attitude. Editorially, is says:

"The President has finally signed the Sundry Civil Bill which provides that the money appropriated for the prosecution of violators of the Sherman law shall not be used against labor and farmer organizations. President Taft vetoed the bill on the ground that it was 'class legislation of the most vicious kind.' Mr. Wilson admits that the exemption is 'unjustifiable in character and principle,' and that being the case he ought to have put the responsibility squarely upon the shoulders of Congress and done as his predecessor did.

"The President explains that there are other funds which can be used to enforce the anti-trust law, but the fact that he has signed a bill which plainly declares the policy of the government to make fish of one criminal and flesh of another will operate to save the labor unions, because no suit against them can be successfully prosecuted in any court of justice so long as Congress has thus given this interpretation to the law.

"The fact of the matter is that Mr. Wilson lacked the courage of his convictions. He was afraid that by doing his plain duty he would alienate the support of organized labor and farmers who believe that they ought to be privileged to violate the law. His failure to veto the measure will painfully disappoint some of his best and most loyal supporters."

Steel Car Safety.

THE "New York Commercial" has the following to say with regard to the comparative safety of steel cars in railway wrecks:

"The steel passenger car again proved its worth in a bad wreck on the Lehigh Valley Railroad Sunday morning. As far as the express was concerned this accident was as nearly unavoidable as it is possible to conceive. An accident to a freight train threw cars across the passenger track just as an express train came along at fifty miles an hour. Some passengers were hurt by the tremendous shock but not one of them was killed and no fire added to the horror. Wooden cars could not have stood the crash and fearful loss of life would probably have occurred had the train been made up of them.

Railroad companies have not had time to substitute steel for wood in their passenger equipment, but the traveling public is becoming insistent in its demands for the safer steel cars. Many railroads cannot make the change because they have no money and can borrow none at present. To abandon millions of dollars worth of wooden cars in good condition and buy steel cars would bankrupt some of them. The best they can do is to stop buying wooden cars.

"If the railroads could raise their rates they could make the change more quickly. They have spent millions on air brakes, safety couplings, electric lights for cars, safety block systems and improved switches. It is unfair to blame them for keeping wooden cars in service. Would the public be willing to pay higher rates for a few years if the railroads appropriated the increase to the prompt purchase of steel cars? It is safe to say that nine travelers out of ten would prefer to take chances in wooden cars. Yet the proposal is fair because the railroads would be sacrificing their investments in wooden cars which were the best obtainable until within very recent years."

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The Railroads' Appeal for Fair Payment for Carrying the People's Mail

EDITOR'S NOTE.—The following statement recently prepared by the Committee on Railway Mail Pay, of which Mr. Ralph Peters, President of the Long Island Railroad Company is chairman, and representing 264 railroad companies of the United States, presents the railways' reasons for a more just method in computing the compensation received by the carriers for transporting the mails. Under existing conditions, there is no escape from the conviction that the Government is procuring a vast and valuable service from the railways, for a part of which no compensation is made. This is peculiarly true since the passage of the parcel post law and the more recent regulations regarding the application of this law permitting a large increase in the size of packages carried.

RALPH PETERS,

President of the Long Island Railroad, and Chairman of the Committee on Railway Mail Pay.

ACCORDING to the recent testimony of Second Assistant Postmaster General Stewart before the Joint Congressional Committee on Railway Mail Pay, "The railroads perform a wonderful service for the Government and for the people, and if it were not for the railroads, mail service would be a vastly insignificant thing."

To carry the people's mail quickly, safely and frequently is a social obligation which the railroads freely concede. It is a service voluntarily performed, for no law compels a railroad company to carry mails unless it contracts to do so. The courts hold, however, that if the railroads so contract, they must do so on terms named by the Government.

Though surrounded by these anomalous conditions, the railroads have without stint placed their resources at the disposal of the Nation to develop the transportation of mails to the highest possible state of efficiency. This service has been paid for at a price fixed by the Government, a price from which the carriers have had no appeal. Railroad officers have felt, ever since the present method of railway mail payment was established in 1873, that this compensation was unjustly low.

This opinion is still held by experienced railroad officers throughout the country, but with even greater firmness and earnestness, on account of the increasing costs of railroad operation combined with frequent heavy reductions in railway mail pay made by the Government.

The United States Government, in 1912, paid the railways $51,697,374.49 for carrying mail. This was about 20.95 per cent of all postal revenues In 1901 the railways received 34 per cent of the postal revenues. In that same year, 1901, the "Joint Committee to Investigate the Postal Service," of which Senator Wolcott was chairman, reported to Congress its opinion that "the prices now paid to the railroads for the transportation of the mails are not excessive." Yet, in 1907, Congress reduced railway mail pay by $2,723,000, about five per cent, and the Postmaster General, upon his own initiative, by Administrative Order, made a further reduction of nearly $5,000,000, about ten per cent; an aggregate reduction of $7,700,000 per annum, or fifteen per cent.

The railroads maintain that at present they are underpaid by at least $15,000,000 per year. It is their belief that a fair adjustment would require that the Government should pay the railroads for all services they render.

The complaint of the railways is not against the standard of measuring such mail service as is paid for, but that a very large amount of service is demanded for which the nation makes no payment whatever.

PRESENT METHOD OF RAILWAY MAIL PAY.

Railroads are now paid for carrying the mails by two methods of measurement:

1. According to the weight hauled each mile; and

2. For each mile a postal car is used for sorting mails en route.

The railroads claim, however, that the Nation does not pay for the entire weight carried or all the car space utilized for sorting. In detail:

1. **Weight.** Ninety per cent of all the money paid to the railroads is for the weight of mail carried. This is entirely proper, and it is also but just that the law should stipulate that the rate of compensation should automatically diminish as the weight of mail carried increases. Weight is the standard by which freight rates and express rates are applied. It is a universal measure of the service of hauling goods. It is an automatic adjuster. On this basis the quantity of the mail itself, multiplied by the distance it is carried, determines what the compensation shall be, and pro-

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INTERIOR OF A 70-FOOT ALL STEEL RAILWAY POST OFFICE CAR.

In the foreground observe the steel racks for holding the sacks open, into which the second, third and fourth-class mail is assorted. Note the overhead boxes running down both sides of the car, also used for these classes of mail and permitting of over 200 separations simultaneously. The letter mails are assorted in the winged cases in the background, these having 748 pigeon holes, and consequently permitting of that number of separations at one time. In the particular car here illustrated there are five railway postal clerks at work. In other similar cars there are sometimes as many as eight or nine clerks. The extra pay for Railway Post Office cars, in addition to the weight pay, ranges from 3.4 cents per mile for a 40-foot car to 5.4 cents per mile for a 60-foot car. The law of 1873 does not make a rate for a 70-foot car. The paying load in these cars averages only 3 tons of mail, although the car could easily contain 20 tons if the space were not occupied with fixtures used in assorting the mails for different destinations.

tects the railroad companies as it does the Postoffice Department.

The law stipulates that the mail shall be weighed for a typical period at least once every four years and that payment shall be made during the entire period according to the average weights then actually ascertained. In practice, the Postoffice Department has construed this law to mean that the mails shall be weighed not oftener than every four years. The result is that though there is a constantly increasing weight of mail, the railroads receive no payment whatever for the increase until the next quadrennial weighing period, when a basis is arrived at which shall govern the payments to be made for the succeeding four years. When, at the end of four years, it is found that a very decided increase in weight has taken place, no back pay is permitted for the mail which was actually carried in addition to the average weight ascertained four years before.

An illustration of the injustice of this quadrennial weighing system is in the fact that just after the weighing of the mails in Ohio in 1907, the printing of stamped envelopes and newspaper wrappers was changed from New England to Dayton, Ohio, so that many railroads have been required to handle this traffic for four years without compensation, while other roads have been receiving for the same period compensation for services not performed. After handling this matter at Dayton for about three years and before the next succeeding quadrennial weighing, the Postoffice Department withdrew a large amount of this matter from the mails and shipped it by freight. Thus the railroads will never receive one dollar in compensation for all of this mail which was handled during that period.

This principle is at present working great hardship to many railroads. The parcel post started January 1, 1913, and immediately there was a great increase of mail and a reduction of express matter for which the railroads had been previously paid. Congress has allowed a five per cent increase in pay to compensate for the parcel post, but the records already indicate that the Government's postal revenues will increase this year from 20 to 30 per cent on account of the parcel post

In considering the foregoing, it should be un-

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derstood that the Government makes no additional payment for speed or for frequency of service. There is no greater pay accorded the railroads for carrying mails at a speed of sixty miles per hour than for fifteen miles per hour. There is no greater pay for 100 trips a day than for one trip a day. The aggregate weight of mail carried, and therefore the pay, is the same, whatever the speed or whatever the frequency with which it is carried.

The railroads are required to take on scheduled trains all mail, even if necessary to exclude and hold back baggage or express matter. In fact, it is not an uncommon thing, in St. Louis for instance, to unload both baggage and express, and place mail in baggage cars in order to supply the space needed to carry all of the mail presented.

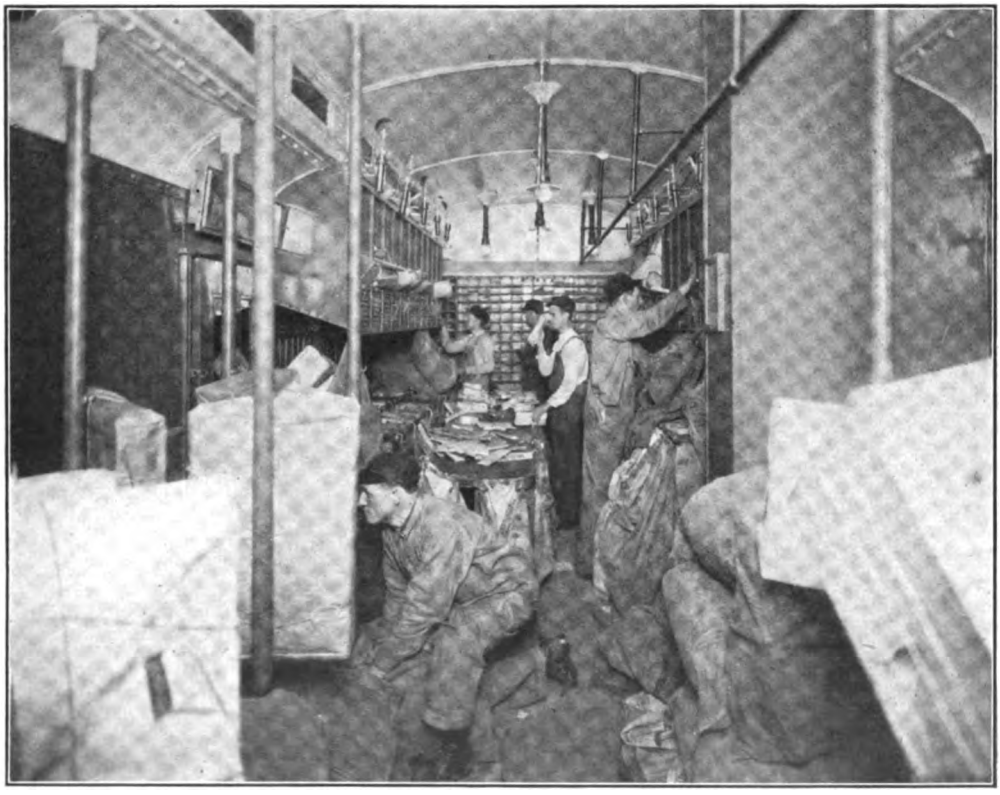
The railroads maintain, therefore, that while weight is the proper measure of pay, it should be ascertained every year and paid for accordingly.

2. Railway Postal Car Service. To facilitate the distribution of mail en route, the railways have provided 1,383 traveling postal cars. They are fitted with every modern appliance and every comfort for the clerks who shall work in them. Full railway postoffice cars of all sizes traveled 126,798,405 miles in the performance of service during the fiscal year 1912. Passenger cars on American railroads the same year yielded revenue of about 25 cents for each mile run. If the railway postal cars had yielded as much per mile, it would have amounted to a total of $31,699,601.

Yet the railway postal cars only constitute about 38 per cent of the entire car space devoted to the United States mails, the other 62 per cent being in mail apartment cars, mail storage cars, and baggage cars.

On a number of routes pay has been allowed for running full cars in one direction only. This obliges the railroad to move the car in the opposite direction without pay. To illustrate: The Union Pacific, in one case, receives no pay for handling eastbound, between Council Bluffs, Iowa, and Ogden, Utah, 1,003 miles, a sixty-foot mail car which is paid for westbound only. For the round trip the company receives 2.24 cents per mile, or about the fare of a single passenegr, although a standard coach of the same size will carry seventy passengers.

These railway postal cars in many cases must be placed in stations from two to seven hours before the time of the train's departure, in order that the clerks may have opportunity to begin sorting the mails. This saves the Postoffice Department the rental of outside office space for that purpose.



INTERIOR OF A 30-FOOT APARTMENT IN AN ALL STEEL COMBINATION MAIL AND BAGGAGE CAR.

In the foreground observe the steel racks for holding the sacks open to assort second, third and fourth-class mail; also the double row of overhead side boxes used for the same purpose, both to permit of 106 separations to be made at one time. The large pigeon hole case in the background is for sorting letter mail into 312 separations. There are four railway postal clerks at work, also one weigher. Note the Parcel Post packages, occupying much space, but contributing little weight. Although the post office work in this apartment is similar to that of the full Railway Post Office car, the law provides no extra pay for the extra car space required by the Post Office Department. The paying load in these 30-foot apartments averages only 1500 pounds, although there is room enough for 10 tons of mail if the space were not occupied with fixtures used in assorting the mails for different destinations.

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Where such track space is used in expensive terminals, such as the Grand Central Station in New York, this item is of considerable account.

The position of the railroads is that the effect of the present practice is to compel much railway postal car service which is not paid for; and that the Act of March 2, 1907, reducing postal car pay was without warrant.

The complaint of the railways is not so much against the standard of measuring such mail service as is paid for, but that a very large amount of service is demanded for which the Nation makes no payment whatever.

Railway Service for Which No Payment is Made.

For the foregoing elements in the railway mail service—weight of mail transported and railway postal service—the Nation makes certain though partial payment. But as was stated by the Wolcott-Loud Commission in 1901, "The railroads perform many services and afford many facilities for which the law does not allow and the railroads do not receive any compensation." That statement is no less true to-day than it was in 1901. Under the law the Postoffice Department alone determines how far the Government shall compel these free services, and that department has uniformly pursued a policy of considering the efficiency of the postal service regardless of how far provision had been made for compensating the railroads for the additional burden imposed.

Those services rendered the Nation for which the railways receive no compensation are the following:

1. *Providing apartments for mail distribution in combination baggage cars.*

Though the Government has recognized that the space used for the distribution of mail en route should be paid for, the law stipulates that there shall be no payment for such space unless the car, or portion of the car, used aggregates forty feet in length. As a matter of fact, a very large number of cars have distribution space of from but ten to thirty feet. Some 4,029 such cars are now in use with space utilized for the mail service aggregating 92,866 linear feet, equal to 1,548 full 60-foot postal cars. This is 160 more than the number of full cars actually in use and paid for by the Government. Yet for the sorting space in these compartments the Government makes no pay whatever.

> On the Pennsylvania Railroad's 20-hour trains between New York and Chicago 13 feet of space for the use of the postoffice is set aside and fitted up with necessary sorting apparatus. The trains carry about one ton of letter mail with the postal clerks who distribute it. The revenue from the mail is solely for weight, and results in compensation of about seven cents per mile going from New York to Chicago, and about three cents per mile in the opposite direction—equal to the fare of two ordinary passengers westbound and one eastbound.

2. *Carrying free postoffice employes not in charge of mails.*

Were fair pay to be made for the car space used for the distribution the railroads would make no objection to the transportation of a reasonable number of clerks in charge of mail, or to free transportation of officers of the Postoffice Department having to do with the transportation of mail. But when an employe or agent of the department travels on Government business as a passenger in a passenger car, the Government, it is maintained, ought to pay his reasonable fare. The amount of transportation required by the department and not covered by law, for which no compensation is rendered, aggregates over $1,000,000 in value per annum.

> For the postal clerks who separate the mail in postal cars or apartment cars the railroads have the same full passenger liability as for passengers. Indeed, the United States Supreme Court has recently extended this liability to apply where a postal employe was not even traveling upon official, but was traveling free upon the railroad on personal business.

3. *Railroads must carry the mail between railroad stations and postoffices when such postoffices are within one quarter of a mile of the station.*

This regulation is a survival of stage-coach days, when carriers of mail by stage were compelled to set the mail down at the postoffices. This service is not expected in the transportation of passengers, express, baggage, or freight.

4. *The railroads are also required to transfer the mail between stations or from one train to a connection, if the stations or connections are within one quarter of a mile of each other.*

This unremunerated service in the city of St. Louis calls for 60 porters especially to carry the mails from the different roads to their connections. In Kansas City 85 men are thus required. In Chicago there are 60 such attendants in one station alone.

5. *Railroads are required to provide rooms in the stations for transfer clerks employed by the Postoffice Department.*

6. *Rooms in stations are also provided for sorting mail. This is a charge on the railroad, but relieves the Postoffice Department of the necessity to pay rent for such space.*

7. *The railroads are compelled to provide mail receivers and mail catchers, so that mails may be taken on and put off moving trains, although in Great Britain, where similar apparatus is employed, the Postoffice Department pays for its installation and maintenance.*

Such are the incidental services required for which no payment is made by the Nation.

It is estimated that the extra space in mail apartment cars for traveling postoffices is worth $5,000,000, if paid for at the same rate as full railway postoffice cars, and also that the other incidental services would, if performed directly by the Government, cost even more than $5,000,000.

The railroads urge that distributing space in apartment cars should be paid for.

They maintain, also, that the incidental services referred to should be performed by the Postoffice Department, or the railroads should receive compensation for what they do.

What the Government Found.

In order, if possible, to ascertain the proportionate cost of carrying the mails in relation to other railway passenger services, the Postmaster General, in November, 1909, required the report of most exhaustive data by the railroads. The re-

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sult was transmitted to Congress on August 15, 1911, in H. R. Document, No. 105. In that report the Postmaster General said that the committee of the department which has compiled the data "estimates that through a readjustment of railway mail pay on the basis of cost with six per cent profit, a saving of about $9,000,000."

This estimate of the costs to the railways of carrying the mails has subsequently been abandoned by the department. This will be apparent from the following:

> Testimony of Second Assistant Postmaster General Stewart, January 28, 1913:
>
> "The Chairman: "Do you mean to imply * * * * that, in your opinion, based upon the information received and the deductions made by you in your study of this question, the railroads have been overpaid $9,000,000 annually for the transportation of mail?"
>
> Mr. Stewart: "No; there is no purpose to make a statement of that kind. The statement which you have read is * * * * solely on the basis of statistics furnished, and the ascertainment made on those statistics, namely, that having considered this data and considered the computations made by the department, the cost of service upon that basis is $9,000,000 less than the amount which was paid to the railroads for the transportation charge."

The result arrived at "upon that basis" was reached by (a) making a division of railway freight and passenger expenses upon a method having but little sanction in experience; (b) eliminating a large amount of passenger train space reported by the railroads as necessarily used for the mail service; and (c) ignoring the justice of any return upon the capital invested in the railroad plant.

Subsequent to the issuance of Document 105, the Postmaster General submitted to Congress a draft of a revised bill in which he suggested that instead of the method he had originally proposed for paying for carrying the mails at cost of service and 6 per cent additional, there should also be a further sum for return upon the capital employed.

> The Second Assistant Postmaster General, in testifying, January 28th, stated that if the railroad companies were allowed credit for what would be a fair return on the value of the property employed, it would, in his judgment, eliminate the $9,000,000 which it had been stated the railroads had been overpaid.
>
> The Chairman: "Why did the department modify its views, * * * * especially the one of an allowance of a reasonable compensation on capital charges?"
>
> Mr. Stewart. "Because, upon a further and more careful consideration of the subject, we were convinced that the railroad companies were entitled to consideration for this additional element."

What the Service Costs.

Taking the Postoffice Department's own figures, allowing for interest on the plant and making adjustments in the percentage of the plant used, shows the following revised result as to the minimum cost of the service:

1. Interest at 6 per cent on 1.95 per cent (the share of the railway plant used for postal service) of the net capital investment of all the railways in the United States is	$16,380,000
2. The space actually used for mail and incidental thereto, but eliminated from the department's calculations	9,600,000
3. Difference between approved methods and the department's methods of separating freight and passenger expenses	5,000,000
Total	$30,980,000

If this sum is added to the net amount estimated in Document 105, as the cost of carrying the mails, it will yield about $15,000,000 more than the sum now paid for railway mail service.

The railroads maintain, therefore, that the most exhaustive inquiry ever made of this subject shows that a fair payment to the railroads for the actual cost of the service would result in the companies receiving at least $15,000,000 more than they are now paid.

The Value of the Service All Important.

Though it is believed that the mail service is not a source of profit, it is not claimed that the railways could abandon the mail service altogether and save money. The principle governing the case was well stated by President Hadley, of Yale, in his book, "Railroad Transportation" (page 112), as follows:

"Any rate which will more than cover the expense of moving the cars and hauling the goods is a paying rate, provided the business can be had on no better terms." The qualification noted is all important.

Individual railroad rates cannot be based upon the mere cost of service. The only sound principle which experience has shown should cover rates is the value of the service. It is unquestionably this principle which, as President Hadley says, "enables railroads to render most efficient service to the community."

Carrying mail is a commercial service. The postoffice is a commercial department of the Government. If a private company ran the postoffice, there could be no thought of an individual having that company do a service for him at less than a fair rate, and there could be no thought of that private company expecting railroads to transport the mails for other than a reasonable compensation. The postoffice is operated by the Government chiefly because of the economic gain which results from having the whole work done by a single organization. As Alexander Hamilton said, in reference to the Constitutional power over Post Roads: "Nothing which tends to facilitate the intercourse between the States can be deemed unworthy of the public care."

In paying the expenses of the postoffice the Government is not distributing public funds, but it is paying one class of citizens for services rendered to another class. Should the railroads, then, be expected to perform a service for the people collectively at a less rate than would be expected for the same persons individually?

Railway mail service should undoubtedly shoulder its due proportion of the expenses incurred by the railroads in the maintenance of their organizations, as well as in the operation of their trains. The whole system of railroad rates is based upon the thought that mail will pay its due proportion.

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If the rates for carrying mail should be upon a lower basis (in relation to the value of the service) than other rates, who should make the sacrifice? Must investors accept lower dividends? If so, railroad credit is injured. Must railway labor sacrifice a portion of its wages? Must passenger or freight rates be higher? Whatever the answer, is it not clear that those portions of the community which provide the railway plant and pay for its service would, under such a plan, be taxed to provide postal transportation for those who make use of the mail facilities?

The Government very properly pays citizens in the Federal employ fair prices for their work. When it buys supplies, it pays the market price The Government does not expect to get its heat, light and telephone service at reduced rates. Yet such services are an essential part of the postoffice service.

The Government contracts for the construction of a warship at a price which enables the highest scale of wages to be paid to workmen and allowing a commercial profit to accrue to the contractor. When the Government ships troops or army supplies it pays prices established by the railroad companies, with recourse to the Interstate Commerce Commission in case the railroads seek to impose an unreasonable rate.

In England, where the railroads are privately owned and where the railway mail service is operated under conditions similar to those which prevail in this country, the railroads can appeal to the Railway and Canal Commission if they feel themselves inadequately compensated for their services. In this country, however, there is no administrative tribunal to which the railways may appeal against such a similar burden. There is, however, a provision in the Constitution of the United States which says: "Nor shall private property be taken for public use without just compensation."

It is upon the basis of this constitutional guarantee, convinced of the justice of their case, and believing in the ultimate sense of fairness in the American people, that the railroad companies have appealed to Congress to remove the existing injustices and establish the method of railway mail compensation upon a fair and equitable basis.

Howard Elliott and the New Haven

Editor's Note.—In response to many questions put to President Elliott of the Great Northern, when it became known that he was to become the executive head of the New Haven System, he has issued the following public statement. As a document which frankly sets forth his intended attitude towards the great system which he has been called to represent, as well as towards the public in the territory through which it operates, it strikingly fulfils its mission and has met with general approval.

Statement By Mr. Elliott.

THE newspapers have asked me many questions in the last few weeks about the New Haven road and the New England railroad situation: whether I was to leave the Northern Pacific and associate myself with the New England Lines; if so, when and why; and what I thought about the situation.

These questions are natural and proper in these days when the head of a quasi-public corporation is a sort of a quasi-public servant. And the people through whom and with whom he is to work are entitled to know about the man and his ideas.

Most of the questions I have been unable to answer, and I cannot answer all of them now; but I will try to answer some.

The directors of the New Haven System have complimented me by asking me to become the chief executive officer, and I have accepted.

I realize full well the burdens and responsibilities that must be carried by any railroad executive in these days of complex relations between the Government,—National, State and Municipal:—the public that must be served safely and reasonably:—the owners and employes who must receive fair treatment and compensation for their investment and labor in their effort to produce the service the public demands:—the press that is such a powerful influence in advancing the welfare of the country by creating a sound public opinion. All must work together to produce those results which everyone desires.

Particularly is this true in the case of the New Haven road, and its associated lines, serving as they do a thickly populated part of the United States. States, where to a large degree foodfuel and raw materials must be brought in promptly and regularly from outside of New England and manufactured articles and merchandise distributed in like manner. And where a very large amount of complicated passenger transportation must be furnished to many communities.

I come into the management without prejudice for or against any community, policy, organization, method of work, man, or men. I hope and expect to find many officers and men with whom I can work closely and cordially. I have no wish to displace any man so long as he is needed, and is of good character, loyal, competent, and is industrious, and will pull his full share of the load.

The laws, rules and regulations laid down by proper governmental authority will be obeyed. If they are such as to cripple the effectiveness and to hamper the development of the railroad in its effort to help the public, a statement to that effect will be made and a request that the people in their own interest, as well as in the interest of the railroad, will permit reasonable changes.

My railroad work has been west of the Mississippi River, where in July, 1880, I began as a level rodman in western Missouri on the Chicago, Burlington & Quincy; and my work has been with that company, projected, built, and for many years operated successfully by New England talent and money, and with the Northern Pacific; both successful, great and growing properties.

I am a great believer in the growth of the United States and of the West and Northwest; but the same forces that cause growth in those parts of our country will bring steady growth in the states of the North Atlantic Coast, with their varied industries and manifold activities

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that reach out and touch all parts of our country.

And I am a very great believer in the future and progress of New England. She always has been, is, and always will be a most important factor and influence in advancing the welfare of the whole country.

While my business life has been spent very largely west of the Mississippi River all of my vacation time, with four exceptions, has been spent in New England. So I feel somewhat familiar with some of the conditions.

Fond as I am of the West and Northwest, nevertheless I feel that it will be a great privilege to spend the later years of my business life, working on the Atlantic Coast and in New England, where my boyhood days were passed in New York, New Haven and Cambridge, and where I am fortunate in having many relations on my father's and mother's side.

I cannot at this time discuss details of management and policy because I have little direct information about the situation.

It is plain, however, that the New Haven and its associated roads are a great instrument of commerce laid out on a broad foundation, but needing much painstaking work and the expenditure of much money to make them entirely adequate and satisfactory to the people they serve.

It is plain, also, that the success or failure of these lines is inter-dependent with the success or failure of many forms of business in the states which the lines serve.

We hear much about conservation in these days, and it is a most important question. The conservation of railroad service is as important to New England as is the conservation of her soil, of her water power, and of her factories. This railroad service can only be conserved by having all who are interested in the welfare of New England fair, prudent, patient, and courageous enough to take a broad, far-sighted view of the whole situation.

No board of directors and no railroad executive can conserve railroad service without being prudent and fair themselves, and without fair and reasonable treatment and support of governmental bodies:—fair and reasonable attitude and support to the press and of the traveling and shipping public, and the great army of owners and employes. Unless all these classes are fair, sensible, without prejudice, patient and helpful each to the other, the best results, and the results that the public desires, cannot be obtained.

It has been my good fortune to have close and friendly relations with the communities served by the railroads with which I have worked, and with the officers and employes of those roads.

So far as I have the strength,—moral, mental and physical,—I shall work to have the same kind of relations between the New England Lines and the governing bodies, the public, the press, the employes, and the owners.

Every owner can do something in his own circle to understand the situation himself, and to help to create a friendly feeling and to give business to the company.

Every officer and employe can do a little more each day to make certain that he is wasting neither the company's time, nor its material, and that he is making the best and most effective use of the company's plant.

Every one with a real interest in the future of New England can do something to help by discussing calmly those failures and errors that are incident to a complicated piece of machinery, that is not yet completed, and that is operated by many thousands of men.

Criticism is expected, and fair criticism does good. Unfair attacks waste the mental energy of the officers and break down the esprit-de-corps of the army of employes.

This complicated situation demands the best effort and spirit of every officer and employe for every waking hour, in order to produce that service which the public asks for and should have if money can be obtained with which to produce it. And the rights of the owners must be respected and not lost sight of if the new money is to be obtained to make of the New England Lines what the owners and what the traveling public and the shippers want them to be:—a comprehensive and effective transportation machine.

Is it not a good time to act upon two of the maxims of Edward Everett Hale, that grand old New Englander: "Look forward and not back," and "Lend a hand?"

I believe that it is and that all should put animosities and prejudices behind them, sink self-interest, be willing to practice some self-denial, and work loyally to help the advancement of a greater New England, and her interests, of which her railroads are a most essential part.

I believe most thoroughly in the fundamental strength of the New England properties, in their ultimate ability to furnish the transportation needed by New England, and in the final good sense and fair judgment of the public. And I believe that the problems now presented to the management and to the public can, must, and will be solved.

I take up this work with a very solemn sense of duty to the owners of the property, to the people that are to be served, and to my family and to myself. If any experience, talent, strength, courage and judgment that I may have acquired in the West can be applied to making a better and more satisfactory transportation machine to serve the people of New England and to build up and be a part of a greater New England, and to bring a return to the many owners of its securities, I shall feel that I have done something to help, and be satisfied and gratified.

I shall give the best that is in me to the work, but I cannot do it alone, and must ask the loyal support of all.

I shall have offices in Boston, New Haven and New York, and my home will be in Boston, from which city I can reach quickly and readily all parts of the system, and confer with the different officers of the various lines, and discuss with them and with the public general questions of mutual interest.

It is a regret, both personal and official, that events have so shaped themselves that it appears to be my duty and obligation to leave the Northwest and Northern Pacific. For ten years I have worked closely with many loyal men, both in and out of the railroad service, trying to build up the Northwest. And it is a great wrench to sever my relations with those friends. I am glad to say that the Northern Pacific property never was in as good condition as it is now—or better organized and equipped to do its duty as a common carrier. I most earnestly hope that my successor will have the same loyal support that I have had.

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How Can the Colleges and the Industries Co-operate?*

By Ivy L. Lee,
Executive Assistant, Pennsylvania Railroad.

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Executive Assistant, Pennsylvania Railroad.

THE college is both a training school and a laboratory. The industries of the world not only look to you to train men who can take up the work of directing and guiding great enterprise, but to a constantly greater extent, industries are looking to you to solve their broader problems. When President Taft wanted a man to report on what should be the proper system of charges on the Panama Canal, he sent Professor Emory R. Johnson, of the University of Pennsylvania, to make the inquiry. Some of the finest work in the study of the transportation question is being done by Professor W. Z. Ripley, of Harvard. The astonishingly able accounting analyses of Professor Henry C. Adams have been of priceless value to the Interstate Commerce Commission.

Right here, however, I would direct your attention to the point brought out in a conversation I once had with Mr. W. M. Acworth, the distinguished English railway economist, who, after returning to London a few years ago, from attendance upon a meeting of the American Economic Association, made this observation:

"I was surprised, hearing the college professors discuss the transportation question, to note how little they really knew of it. They understood the theory, but not the practice. And later, discussing the subject with many railroad presidents, I was astonished at their lack of breadth. They understood the practice, but few knew the theory."

And that, gentlemen, leads me to the chief thought I wish to present to this gathering. The demand of industry is for men who understand both the practice and the theory.

Let me be concrete. It is the experience of Pennsylvania Railroad officers that graduates who come to them from technical schools are deficient in three general particulars:

(1) Lack of practical experience and judgment,

(2) An idea that they are far superior to the rest of mankind; and

(3) A certain narrowness of mind, inculcated through too exclusive attention in college to mathematics and theoretical science, and a too great neglect of those broader subjects, such as political economy, history and general literature.

With your indulgence, therefore, I will make a few suggestions as to how these deficiencies may be met.

1. The question of practical experience might be remedied by the man serving two or three years as a machinist prior to going to a technical institute. Of course, this is not feasible in a large number of cases, and the man must get his actual experience after he starts regularly to work. But the college can implant in his mind certain sound fundamental ideas. A man who has had a good engineering education and has absorbed commercial ideas will make a good commercial engineer. One who is a theorist and scientific man only, with no commercial ideas, will make a good investigator, and possibly a good man in a test department, especially when engaged in scientific research; but even a good test department man requires some little idea of business, because test room questions are not settled on quality alone. The best quality for the same cost is the real question at issue. The man of great value to an industry is he who does not merely attempt to follow a theoretical ideal, but who adapts his theories to the actual limitations of the moment, and secures the best practicable result.

2. Men leaving technical institutions should be made to have a thorough understanding of the fact that they are necessarily almost completely lacking in a real knowledge of the practical application of the principles they have been studying. If a student can be trained by the time he completes his college course to have real openness of mind, he will be well on his way toward success when he leaves college. Young technically educated men leaving school should, at the start, forget that they are men of scientific training, and tackle work precisely as do other workmen, knowing that when they have mastered that part of their education, the time spent in doing so will not have been wasted.

While it is not expected that technical men entering railroad shops shall have to consume as much time on menial or trivial work as those not possessing such advantages, nevertheless, to regard time spent in the shops as time lost in the pursuit of their true vocation is a very grave mistake, and results in many technical men not being advanced to a position of managing other men.

It is of the greatest importance, too, that students be impressed with the human elements in

*—Note.—An address delivered before the annual meeting of the Society for the Promotion of Engineering Education, held at Minneapolis, Minn., June 26.

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all industrial work; that is, they must realize that whatever their college education may have been, they are of very little real value until they have acquired something which few colleges teach. Too often young men come from our colleges with the feeling that they know too much to be told anything by men who have not had a college education. By assuming such a stand they close the mouths of men who could and would give them very useful information.

A beginner in the practical end of any line of work should be taught beforehand that college education is not everything, and that results can only be accomplished through other men. Therefore, he must get the viewpoint of other men before he can secure that sympathy from these other men on which his success as a manager will depend. In doing this he will get much misinformation, which he will know to be such, but this knowledge he should keep to himself. We see all around us men holding the highest positions, who have come up from very small beginnings, with no apparent advantages. Yet we find that these men have their business at their finger tips, because they have been through all of its grades. The feeling that the possession of an education relieves a man from the necessity of going into these details has resulted in many men becoming nothing but technical advisers to carry out the wishes of other men who thoroughly understand the details of their work. Such merely technical advisers never share in the great rewards which come to the men who combine a mastery of both theory and practice.

3. It is of prime necessity, of course, that a man who is trained to practice engineering shall have a good engineering education. Successful men in railway engineering work must necessarily be familiar with the laws of nature and the fundamentals of mathematics. This information can be obtained, however, outside of technical colleges, and the man who obtains his information in this manner, by the necessarily more concentrated application on his part, is generally a better engineer than a large percentage of college graduates. Many competent judges believe that technical courses in the majority of the colleges lay too much stress on details. If more time were spent on the study of fundamental principles, it would result in developing more resourceful men. Some of our officers, in advising young men, have suggested to them that they devote their entire time to the study of mathematics, physics, chemistry, English, and one foreign language, and not take up any particular branch of engineering. A student who is well grounded in the above studies can take care of any proposition which will come before him. His resourcefulness will be developed by reason of his being compelled to work from principles rather than trying to fit the problem before him to some particular detailed case which he has learned in his engineering course.

Many of our officers hold the view that the best shop work for college men is that which can be obtained during the summer in the various shops where actual work is done, rather than having the time of the student taken up by the more or less imitation shop work that is done at some of the schools. The most valuable part of shop experience to a student is the coming in contact with men and absorbing their experience.

I asked not long ago the man who, I believe, is conceded to be the greatest expert in this country in railway electrification, to tell me what he really learned at college. His reply was:

"I am inclined to think that the most valuable asset that I brought out of my college course was the habit of studious application to the job in hand rather than a finished knowledge of any subject."

In the final analysis the technical student has only time to acquire a fairly good grounding in principles of engineering. The college-trained man, however, has an immense advantage, after he obtains some experience, over the non-technical man in being able quickly to grasp the relation between the theory and practice, and to apply correct principles to practice.

I would urge that you not only see to it that students receive a broad general education, but that they be made to see that it is of great importance not to be in too big a hurry to commit themselves to a particular life work. College professors can be of great value to their students, and also to industries, by advising men frankly as to their limitations, and also as to their strong qualities. * * *

Young men are frequently placed in positions for which they are entirely unsuited, while if they were moved to other positions more adapted to their make-up, they would often prove successful. Some of the very best men in certain departments in our shops at Altoona can never go higher because there is nothing else that is suitable for them to do in general railroad work. In some of these cases no other men on the road could fill their present positions as well as they do. The only thing for such men to do is to leave the railroad and seek positions with concerns that can afford to pay more for the particular kind of ability which these men possess.

So much for suggestions as to how colleges can the better equip men for taking their part in building and directing our industries. You have all noticed, however, that this is a day of social service. Never before were so many men being called for to act for the people at large in the control of industry, and particularly transportation. The Interstate Commerce Commission has just advertised for a large number of engineers to assist in the pending federal valuation of railroads. Never did a situation more strikingly illustrate the need for men with practical training. If the proposed valuation is carefully and wisely made, it will do great good. As Mr. Thomas F. Woodlock said, in a most illuminating article in the New York *Times* Annalist of June "Partial confiscation—partial at least—of property actually invested in railroads will be quite possible by 'valuation' if the public is determined to do it, or if the 'valuers' are permitted to run riot among the technicalities." It is an occasion when practical men are needed, men capable of seeing facts as they are—and not with reference to any theories or past prejudices.

So men are being demanded for work with public service commissions, in colleges as teachers, in University Settlement and municipal health work, in city governments, and in all those capacities where men can serve their fellow creatures. This is one of the hopeful signs of our times. But this is a period of great unrest. Many strange economic and political theories are being preached. It is a time when our young men should see that things cannot be always as they should be, but that our duty is to make them as good as we can.

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Railroad managers, for instance, would be delighted to equip every mile of road with automatic block signals, to make every car of all steel, to remove all grade crossings, and otherwise avail themselves of every device to insure safety. But this cannot be done without the necessary money. So in all things it is well to hitch our wagon to a star, but be sure that the connecting rope is long enough and elastic enough to let us keep the wheels on terra firma. We cannot go through life on an aeroplane.

The manager of every industry would be glad to allow his employes a short work day, and surround them with every comfort and luxury. But here again are limitations which must be regarded, and which it is of particular importance to have deeply embedded in the minds of the men you send out into the world to work and to direct the labor of other men. Amidst all the efforts for social betterment, and for adding to the general welfare of men, we are forced to realize the old fashoned doctrine that, in the long run, men can reap only as they sow. I leave with you, then, these lines of Kipling's:

"From forge and farm and mine and bench,
Deck, altar, outpost lone—
Mill, school, battalion, counter, trench,
Rail, senate, sheepfield, throne—

"Creation's cry goes up on high
From age to cheated age;
Send us the men who do the work
For which they draw the wage."

College Professors in the Work Shop

BELIEVING firmly in a closer co-operation between industrial and educational institutions, to the advantage of both, twenty-eight college professors representing the electrical engineering departments of twenty-six colleges are spending their vacations working side by side with the skilled mechanics and engineers of the Westinghouse Electric and Manufacturing Company at East Pittsburgh.

By taking this course, the professors are aiming to accomplish a fourfold object: to obtain a firsthand working knowledge of the methods of practical electrical engineering; to secure the opinions of successful engineers and manufacturers on the qualifications of men needed in industrial work, so that they may be taught accordingly and thereby be properly qualified for success in their chosen branches; an exchange of teaching ideas among themselves; a study of the industries of the Pittsburgh district.

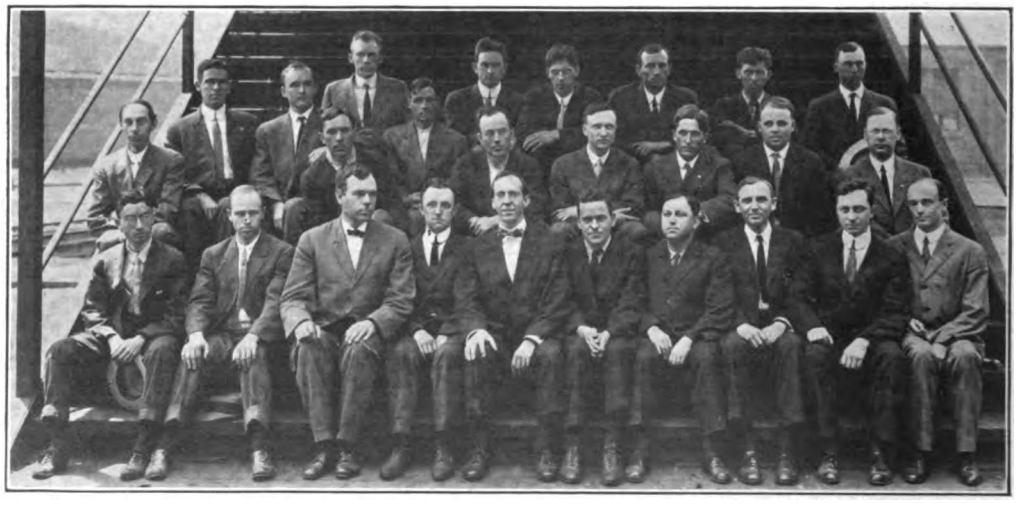
Many of these professors are heads of the departments in their respective schools and the average length of time spent in teaching is 5¼ years.

The professors are employed on the regular shop pay roll and conform to shop hours and regulations, receiving therefor a compensation of 22 cents per hour, or an average of $55 per month; the regular rate for second year apprentices.

The Westinghouse Electric and Manufacturing Company is a warm supporter of this movement of co-operation between the industrial and educational institutions, and has delegated its highest officials and engineers to meet with the professors and explain to them the work of the various departments of the big electric works; each phase being explained by an expert in his line.

At the close of working hours in the evening, these student-workmen, without stopping for dinner, get a lunch of sandwiches and coffee and proceed on a trip of inspection through the works, guided by shop foremen and superintendents, ending in a meeting for discussion of the points covered by the trip.

College professors are usually lacking in practical knowledge of works management and efficiency methods and it is hoped by this course



PROFESSORS OF VARIOUS PROMINENT COLLEGES WHO ARE SPENDING THEIR VACATIONS AT THE NEW WORKS OF THE WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY, AT EAST PITTSBURGH, FOR THE SAKE OF THE PRACTICAL EXPERIENCE TO BE PROCURED.

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to gain such a knowledge from close contact with such work and the men who direct it.

At the evening meetings, lectures are given by engineers, works-managers, foremen, and also educators from their own crowd and the educational institutions of the Pittsburgh district.

In such meetings and by close association with one another for a period of several weeks ideas are obtained and fully developed that prove of immense advantage in furthering the work in which they are engaged, that is, teaching electrical engineering.

The course opened and will also close with a dinner given by Westinghouse officials.

Prof. George B. Thomas, of Colorado College, has charge of the course and is looking after the details in addition to working himself. A complete schedule has been worked out covering the lectures and the industrial plants, one of which latter is visited each week.

The Living Wage and the Living Rate

NOTE.—The following article by Colonel Theodore Roosevelt, published in the July 5th issue of *The Outlook*, is significant. In this article Colonel Roosevelt does not directly advocate an increase in rates, but he does call attention to the unfortunate results which would follow a denial of rate increases should the carriers present a convincing case in favor of such increases. This is all the railroads desire. They are convinced that they can conclusively show the necessity for increased rates in order to maintain a progressive transportation plant, and that an impartial investigation by the proper authorities will bring the much needed relief.

RECENTLY certain railway men petitioned the Interstate Commerce Commission to be allowed to raise rates. It is announced that the Interstate Commerce Commission is to look into the case. This makes it opportune to say a word or two on the subject; for the ability of the honestly managed railways of the country to render good service to the public and to pay good wages to their employes ultimately depends upon there being a reasonable return to the honest investors, which means that the railways must possess a good earning power, which largely depends on the rates. The very big investor, like the very big shipper and the very high grade wage-worker, can usually get along somehow even under adverse conditions; but for the sake of the small or ordinary investor there is need of a living rate just as there is need of a living wage for the average workingman. The living wage and the living rate are interdependent.

There are railways which have been so foolishly or so corruptly organized and managed that it is impossible for investors in them to get adequate return for their investments; just as it would be impossible for them to do so if they had acted foolishly, or had been the victims of swindling, in connection with a dry goods store, or any other business enterprise. The public must not be expected to sacrifice its own interests and the interests of wage-workers in order to pay dividends on watered stock, or to secure promoters and managers against the consequences of their own folly. What I have to say does not concern railways of this stamp.

But it must be a cardinal principle in dealing with honestly built and wisely managed railways that the investor, the shareholder, is just as much entitled to protection as is the wage-worker, the shipper, or the representatives of the general public. Unless the investor finds that he is to get a fair return on his money, he will not invest, and in such case not only will not be able to repair the waste, the wear and tear, to which they are subject, and will not be able to make needed improvements. All governmental action, whether by the legislature or the executive, should be conditioned upon keeping in view this fact.

By actual experience it has been found that it is unsafe to leave the wage-worker, the shipper, and the general public, and furthermore that it is unsafe to leave the small investor himself at the

COL. THEODORE ROOSEVELT.

mercy of the big men who manage railways. But on certain points the interests of the big man and the small investor are identical. On certain other points the interests of both of them are identical with those of the wage-worker. On all points the only way of securing permanent justice to each class is by giving permanent justice to all classes. The public can be well served, and the wage-workers can be well paid, only if the railway is successful, that is, if there is such certainty of reasonable dividends as to make investors content, and therefore willing and desirous to invest in further developments and enterprises.

This is a sufficiently obvious fact, but it is a fact often in practice forgotten. In certain cases workmen's compensation laws and full crew bills are passed by legislatures at the same time that rates are reduced by commissions, or indeed sometimes by legislative enactment, until the property ceases to pay. Now a cardinal point made by all enlightened advocates of such laws as workmen's compensation and the like has al-

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ways been that the burden is to be distributed through the corporation upon the public. Public service commissions are created for the very purpose of supervising, controlling, and regulating the activities of the railways so that they shall not only be obliged to treat their employes, the shareholders, and the general public fairly, but shall be guaranteed fair treatment themselves in return. Some railways are so remunerative that it is fair to reduce their rates at the same time that we increase their burdens. There are other railways as to which the only effective way to distribute the burden of payment for extra safety to employes and the public, and extra compensation to and care of the workers, is by rendering the service more remunerative; and this may of necessity means raising rates. It is just as much the duty of the Commission to permit rates to be raised when the raise is justifiable as to require them to be lowered if the lowering is justifiable. The Commission is created precisely because this is the kind of work it can and ought to do, and the kind of work that no legislative body could with wisdom perform. The Commission is no true servant of the public unless it unhesitatingly raises the rates when justice in the public interest requires such action, and unhesitatingly lowers the rates when this is the course which will ultimately best meet the public needs.

This is merely part of the general doctrine of administrative control of big corporations. The control should not be hostle to the corporation; it should merely be hostile to any misconduct on the part of the corporation, and it should protect the corporation against misconduct aimed at it exactly as it protects others from misconduct committed by it. Unless the corporation makes money—that is, unless business men are prosperous—there will be no money to give in proper wages for the wage-worker, there will be no money with which to provide for his protection and to insure him against loss and damage, and no money wherewith to render proper service to the customers and to the public as a whole. Whether the reward comes in the way of big salary to the big manager who makes the business a success, or of dividends to the big or small man who invests money in it, the principle is the same. Our purpose is to see that there is a proper division of prosperity. But there can be no division unless the prosperity is there to divide. One of the methods by which the prosperity will certainly be abolished is to draw the line against size and efficiency instead of against misconduct. Another way to destroy it is to impose burdens, however necessary and proper without facing the fact that some one must pay for the burdens, and that if the investor cannot pay for them and at the same time get a reasonable return on his investment, then either the business will close or the public must share the burden with the investor.

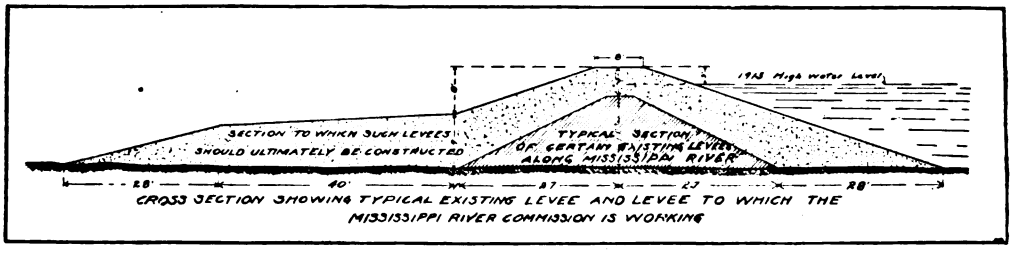
In the concrete case before us it is for the Commission to determine with strict justice to all parties how the relative and often conflicting demands of the shareholders, the wage-workers, the shippers, and the general public can properly be met. I am not discussing—I have not the knowledge which would warrant my discussing—whether the rates should be raised. If the facts do not warrant a raise, then the raise should not be permitted; but if justice and the interest of our people as a whole demand a raise in rates, then that raise in rates should unhesitatingly be authorized.

The Western Flood Problem

THE disastrous floods of 1913 have brought sharply to the attention of those concerned, the necessity of devising some better method of holding in check the waters of the Mississippi and its tributaries. The railways are particularly interested in the development of some effective plan, as they are always among the chief sufferers from flood disasters. Recently the United States Mississippi River Commission has been investigating the matter of levee construction and possible improvement, and A. S. Caldwell, president of the Mississippi River Levee Association, presents in *The Nation's Business* of July 15th, the following statement regarding the progress of the Commission's work:

"The sketch accompanying this article, shows a cross-section of a present typical Mississippi River Levee (shaded black) and of a properly constructed levee (dotted) as proposed by the United States Mississippi River Commission. The latter contains twice as much earth as the former and is twice as strong. The United States Mississippi River Commission estimates that these larger levees can be constructed from Cairo to the Gulf, at a cost of $58,000,000 and will afford complete protection against future overflows.

"The Mississippi River Levee Association favors the Humphreys-Ransdell bill. It provides for the appropriation of $60,000,000 over five years for the Mississippi River from Cairo to the Gulf on condition that $15,000,000 is contributed by the adjoining states for levees. $15,000,000 of Government funds is allotted to bank revetment for maintaining and improving navigation, and $45,000,000 to levees for flood protection. The nation having already expended $27,000,000 on levees, it will, if the appropriation



CROSS SECTION SHOWING TYPICAL EXISTING LEVEE AND LEVEE TO WHICH THE MISSISSIPPI RIVER COMMISSION IS WORKING

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of $45,000,000 is made, have contributed $72,000,000 for flood protection against $75,000,000 by the States, viz.: $60,000,000 already spent and $15,000,000 required by this bill. An equal division of the cost of this great work between the Government and the States is all that fairness should require.

"It is the opinion of all civilian and United States engineers who have studied the subject, that a properly constructed levee system is the only feasible and economical method of preventing floods in the lower Mississippi River. This is also the opinion of the Mississippi River Commission which has had special charge of this part of the river for over thirty years.

"The Government Commission of 1860 reported, 'The plan of levees which has always recommended itself by its simplicity, can be relied upon for protecting all of the alluvial bottom lands liable to inundation below Cape Girardeau.' Another United States Commission in 1875 so decided.

"The Senate Committee of Commerce in 1898 declared: 'From all the evidence taken by your committee, it is evident that the basins along the Mississippi River can only be protected from floods by an ample and complete system of levees from Cairo to the Head of the Passes.'

"Colonel C. McC. Townsend, one of the ablest engineers in this country, was stationed in Memphis for over six years in charge of this section of the river; he also spent many years on other sections of the river and has investigated the levee system of foreign countries. In his Memphis speech he said: 'Levees have been tested for ages and have proved uniformly successful when built to adequate dimensions—no other method of relief from floods has been successfully applied to large streams.'

"The levees along the Rhine, the Danube, the Po and the Arno—all alluvial streams like the Mississippi—have prevented overflows for hundreds of years. So have the levees of Holland. We do not need to go to Europe for proof of levee efficiency.

"The levees of the Upper Mississippi District —100 miles long— were built higher and stronger than any others along the river and have not broken Even these are not what they should be, but they held the unprecedented waters of 1912 and 1913.

"In the 1,355 miles of levees on both sides of the river in the States of Arkansas, Tennessee, Mississippi and Louisiana, there were in 1913, only seven crevasses, measuring about five miles in length. This should prove the present levees to be of great value, and that levees twice as strong will be efficient.

"Among engineers there seems to be unanimity in protesting against the construction of flood-water reservoirs in the Mississippi Valley.

"In his speech of April 11, 1913, before the National Drainage Congress in St. Louis, Colonel C. McC. Townsend said: 'To have retained the Mississippi flood of 1912 within its banks would have required a reservoir in the vicinity of Cairo, Ill., having an area of 7,000 square miles, slightly less than the State of New Jersey, and a depth of about 15 feet; the quantity of material to be excavated in its construction would be over 100 billion cubic yards and its estimated cost from 50 to 100 billions of dollars. Such a volume of earth would build a levee line 7,000 miles long and over 150 feet high.'

"The United States Senate Commerce Committee in 1898 reported, 'The cost of constructing and maintaining a system of reservoirs would be enormous and far greater than the cost of leveeing the entire river basin. This scheme is regarded by engineers as wholly impracticable. Your committee can discover no just or adequate relief in reservoirs.'

"The protection of the alluvial lands of the Lower Mississippi River from overflow and the addition of this vast territory to the productive area of the United States, is now generally conceded to be a national duty. The three great political parties embodied resolutions to this effect in their 1912 platforms, and their candidates so declared."

The Struggle for Greater Railway Safety

THE Pennsylvania Railroad has recently issued a pamphlet in which is described in a most interesting manner the struggle in which this great system is constantly engaged in providing the ultimate of safety both for its patrons and employes. In view of the recognized enterprise of this system and its desire and ability to provide and maintain the best methods for the transportation of both passengers and freight, the following paragraphs taken from the pamphlet referred to are of more than ordinary interest:

NEARLY five hundred million passengers—one-third of the population of the globe—have been carried by the Pennsylvania Railroad in the past five years, and sixteen of them lost their lives in accidents to trains, nine having been killed in one accident. Thus, in five years, only five trains out of over 4,000,000 operated suffered wrecks which caused the death on any of them the passengers carried on them.

The record of the Pennsylvania Railroad Lines East of Pittsburgh for passengers killed in train accidents in the past five years is as follows:

Year.	Passengers carried.	Train accidents in which passengers were killed.	Passengers killed in train accidents.
1908	88,328,604	0	0
1909	92,391,356	1	1
1910	100,844,477	0	0
1911	97,978,839	2	11
1912	101,755,061	2	4
	481,298,337	5	16

Out of 61,443 men employed in train service on the Pennsylvania Railroad East of Pittsburgh, 119 were killed in 1912. Of this number, but 17 were killed in accidents to trains, freight and passenger. The records show that but an infinitesimal proportion of accidents to employes occur on passenger trains.

There were some 68,000 men employed in shops and on the tracks in 1912; of this number, 166

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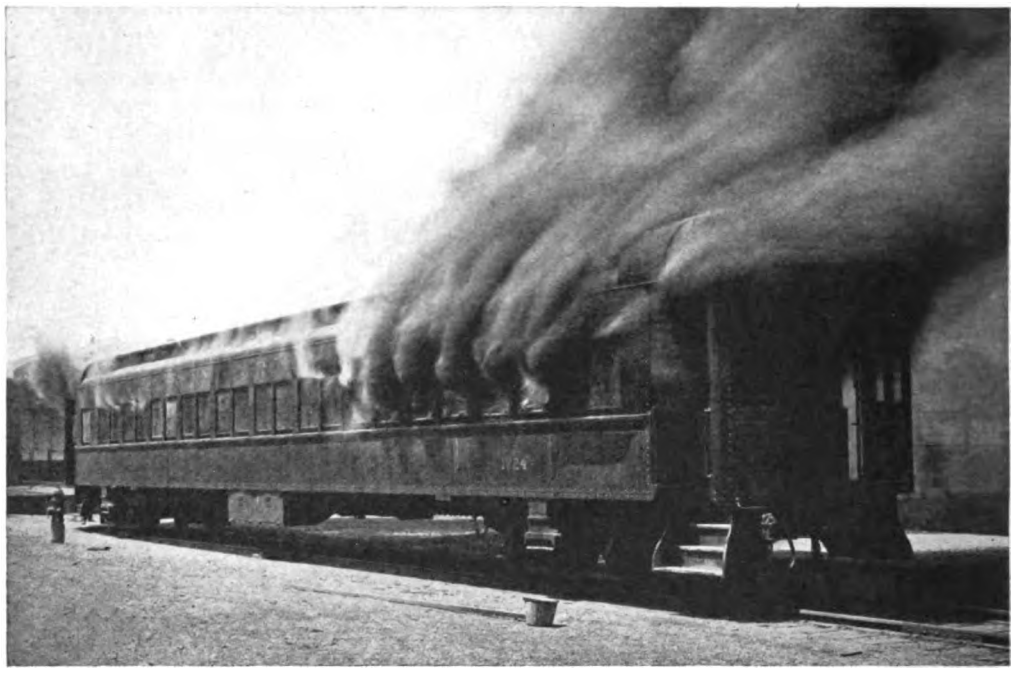

GIVING A STEEL CAR A BAPTISM OF FIRE.

To test the security of a steel car against fire, 200 pounds of shavings and wood, saturated with oil, were burned in this solid steel passenger car, causing damage only to the paint and upholstery. The Pennsylvania Railroad in 1906 announced that thereafter only all-steel cars would be added to its passenger equipment. No wooden passenger cars have been built since that time.

were killed as a result of accidents, none of which was a train wreck.

In other words, while 285 train, track and shop employes of the Pennsylvania Railroad were killed in 1912, but 17, or about six per cent, of them were killed in accidents to trains. The other deaths were due to trespassing, to carelessness, and, in some instances, to defects of shop machinery and other avoidable causes.

Freight trains were operated on the Pennsylvania Railroad East of Pittsburgh for a total distance of 32,114,305 miles in 1912. As passenger trains ran over 40,000,000 miles, all trains covered a total of more than 72,000,000 miles—and 21 people, four passengers and seventeen employes, were killed in accidents to trains.

On the doctrine of averages, fourteen trespassers will be killed by American railroads to-morrow. An average of fourteen people, trespassers on railroad property in violation of the law, are killed in this country every day. Of all the 10,446 people killed on American railway property in 1912, 5,449—more than half—were trespassers.

But it is a mistaken idea that all trespassers are tramps. To find out really the class of people who trespass on railroad property in violation of the law, and in the face of probable death, the Pennsylvania Railroad conducted an exhaustive investigation of every case where a trespasser was killed or injured last year. The records show that only about one half of the 267 trespassers killed and the 276 injured on the Lines East of Pittsburgh were classed as "unidentified, mostly tramps." The others were useful citizens.

All trespassers' deaths which occur on the Pennsylvania Railroad are classified in the Interstate Commerce Commission reports as "killed in railway accidents."

Among the 267 people who lost their lives while trespassing on Pennsylvania Railroad property were blacksmiths, farmers, carpenters, a cemetery sexton, clerks, a coal dealer, employes of other railroads, glass workers, laborers, a mail carrier, miners, a slack wire performer, a sailor, steel workers, students, a superintendent of a gas well, a soldier, and others from probably a dozen more vocations.

While only figures from the Pennsylvania Lines East of Pittsburgh have been analyzed, complete returns from every one of the roads of the System show that 490 trespassers were killed in 1912. The System's reports for the last thirteen years show 9,013 trespassers killed and 8,777 injured. The records for the past six years are as follows:

ACCIDENTS TO TRESPASSERS.

Year.	Killed.	Injured.	Total killed and injured.
1907	916	775	1691
1908	743	691	1434
1909	633	683	1316
1910	585	582	1167
1911	527	447	974
1912	490	492	982
	3894	3670	7564

The above figures are pointed out as emphasizing the contention of the railroads that laws should be enacted providing substantial punishment for persons trespassing on the private right of way of any railroad.

The renewed and diligent efforts the Pennsyl-

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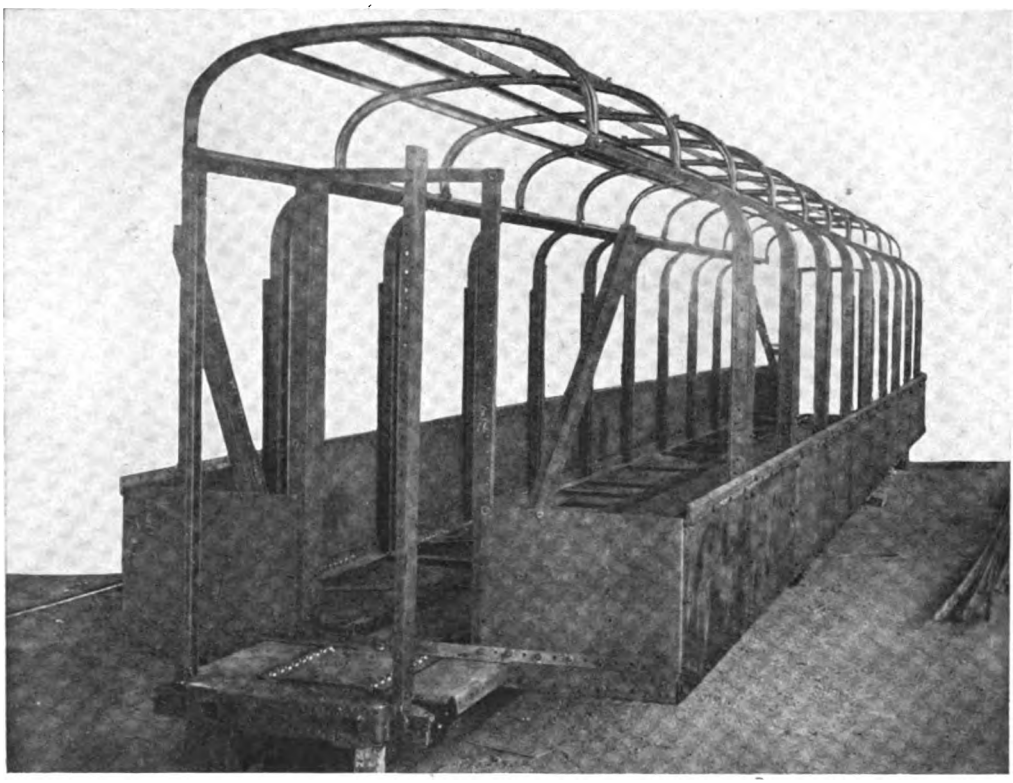

THE SKELETON OF AN ALL-STEEL CAR.

This shows the structure of an all-steel car with its heavy steel backbone—a protection against damage by collision. Some 2872 solid steel passenger cars—probably half the steel passenger cars in the United States—are in service on the Pennsylvania System. They represent an expenditure of $40,000,000. The total passenger equipment of the system is 6252 cars.

REPLACING WOODEN BRIDGE WITH CONCRETE.

The new concrete bridge over Gunpowder River, near Baltimore, Md. This photograph shows old wooden bridge alongside; the latter is in use at present. The new bridge is 4960 feet long and 30 feet wide. It consists of 189 spans 26 feet long, with a drawbridge span 35 feet long.

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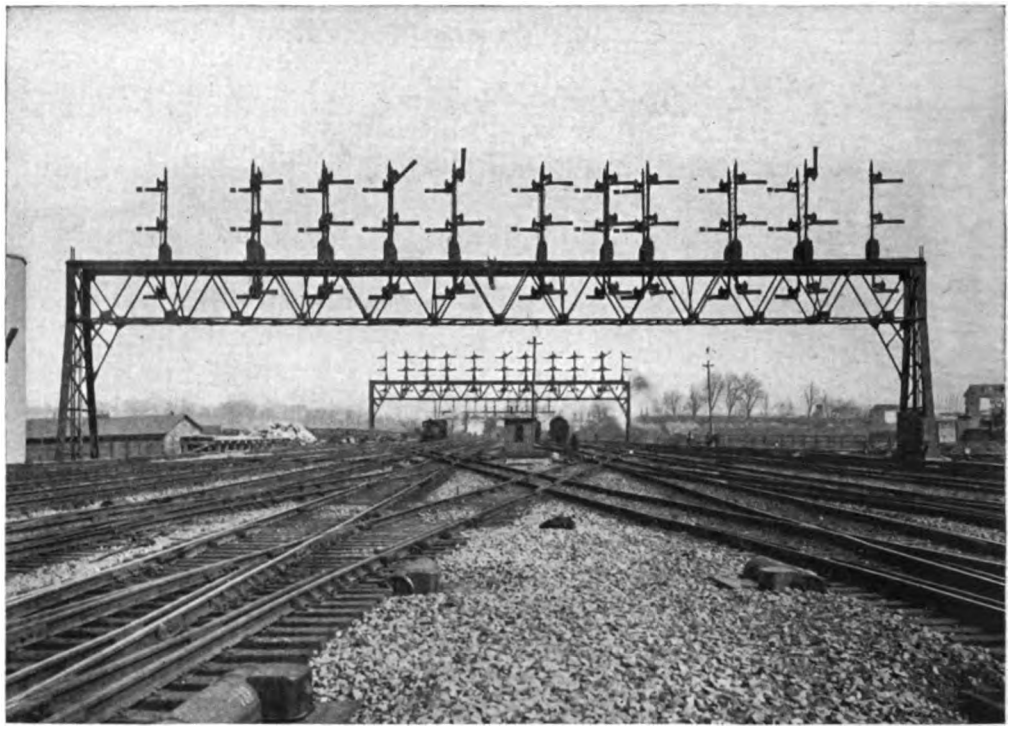

SIGNALS AT WASHINGTON STATION.

One of the most perfect signal installations yet devised is that which protects the network of tracks at Washington Terminal.

vania Railroad is making to stop trespassing will be measurably influential, the management believes, in arousing the public to a realization that in accidents to trespassers it is the individual who loses his life, than which there can be no greater sacrifice. Society loses the individual.

The loss to the nation in the money value of human lives sacrificed in trespassing is most serious. It is a constant and continuing drain—one which the railroad, unsupported by active public sentiment, is powerless to stop.

The management of the company regards every accident of any kind on the property of the Pennsylvania Railroad as one too many. The number of accidents is too large; it must be cut down. To that end efforts are being directed more definitely and systematically than ever before.

The greatest problem the railroad has to solve in its efforts to conserve life is to find ways to protect those who won't protect themselves. Unfortunately, passengers, trespassers and employes continue to take chances with death, and the railroad is throwing as many barriers as possible in the way of their risking their own lives, as well as the lives of others.

Employes who knowingly take chances of injuring or endangering either themselves or their fellows are disciplined now, even though no one is hurt. To get at such cases, "surprise tests" of obedience to rules are conducted among all classes of employes. These are held at unexpected times and under unusual conditions, so that they reveal just to what extent rules are broken and risks taken.

Records of tests made in 1912 give an excellent indication of the hearty support employes are giving the safety movement.

Of all the 1,134,715 tests reported, 99.8 per cent showed perfect compliance with all rules, but the remaining two-tenths of one per cent represents 2,216 cases that might have resulted in accidents.

It is further to insure the safety of employes and the public that these tests are conducted. If the lives and limbs of passengers and employes are to be protected, every employe who has anything to do with shop practice, with maintenance of way, or with the operation of trains, must refrain from violating rules, or even taking chances of accidents. These tests are not confined to any class of employes. Trackmen, station men, trainmen, and clerks are all checked up with a view to adding every possible precaution against accident, while at the same time improving the efficiency of operation.

While the relative number of accidents on the Pennsylvania Railroad may not seem large when the mileage of the railroad and the heavy traffic hauled is considered, nevertheless the company has set out to reduce not only the relative number of accidents, but to eliminate them as far as possible.

In the past two years machinery has been safeguarded, tracks have been re-posted against trespassing, and some $300,000 has been expended in carrying out recommendations of safety committees of employes.

In the past year an investigation has been made of every accident that occurred on the Pennsylvania Railroad, whether it was the case of a woman tripping on station steps, or the derailment of a passenger train. These accidents have been

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How the Pennsylvania Railroad Eliminates Grade Crossings.

This is a photograph of a concrete bridge just completed over the six-track line at Linden, N. J., at a cost of $50,000. There remain on the 11,000 miles of line comprising the Pennsylvania System 13,027 crossings at grade. It costs an average of at least $50,000 to remove a grade crossing. Thus, to eliminate every such crossing on the lines of the system would cost upwards of $600,000,000. The various companies of this system have expended $66,641,294 in improvements, resulting in the elimination of 1052 grade crossings since 1902.

analyzed to arrive at their fundamental causes. Formerly it was sufficient to know the cause of an accident; now exhaustive investigation develops all the contributing elements of the cause, in order to prevent the recurrence of similar contributing causes.

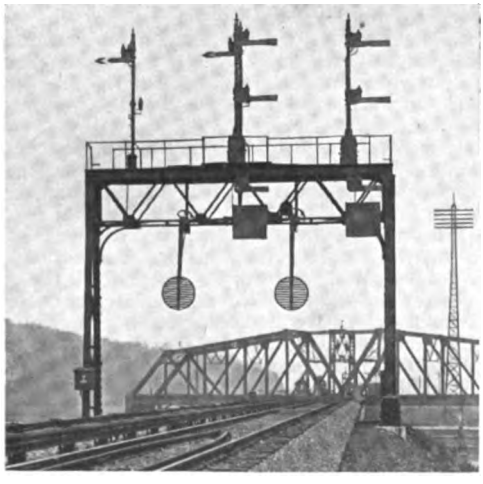
This study has brought out those practices which cause almost every kind of accident that occurs on railroad property. Probably seventy per cent of all accidents that occurred in 1912 could have been prevented if employes had exercised special caution.

To give every employe the benefit of this painstaking investigation of thousands of accidents, both serious and trivial, a book has been compiled giving what are called "Safety Hints and Suggestions for the Prevention of Personal Injury Accidents." One hundred thousand have been printed, and will be given to officers and employes of the railroad.

In addition to distributing these suggestions for accident prevention, the General Manager makes this personal appeal for the co-operation of every employe:

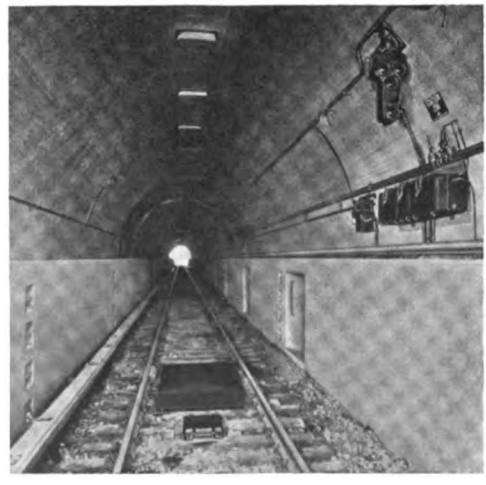
"The business of transportation requires that more than ordinary precaution shall be taken to safeguard operation from accidents, and while in all railroad operations the safety of passengers is the first consideration, the problems presented in protecting its employes in many respects are identical, and in safeguarding the latter the safety of the public is also largely secured.

"Safety in railroad operation is not a question of safeguards, but of intelligent caution constantly exercised. The ultimate aim of the safety work is to develop in each employe a sense of personal



Protecting a Drawbridge.

If an engineer runs by his danger signal, these semaphores block his path. If he disregards them, his train is derailed automatically.



Protecting a Tunnel.

The Pennsylvania tunnels into New York are automatically protected by the most approved electro-pneumatic signal devices known to science.

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responsibility, not alone in taking measures for his own safety, but for that of his fellow employe as well."

The aim of the Pennsylvania Railroad is to imbue every man in its employ with a disposition to be careful and to safeguard the operation of the railroad so well that accidents of every kind shall be as infrequent as human foresight can secure.

Railway Taxation

By W. J. MEANY.

NEXT to the periodical demands of employes for more wages or for easier working conditions, perhaps the progressively increasing tax burden perplexes the American railroad manager most. Whatever limited control he may be able to exercise over wage increases, he can exercise none over tax increases, but must offset them as best he can by lowering the cost of operation. There is a limit, however, to the economies that may be effected in operating costs and there is ample evidence that such limit, in many cases, has been nearly reached. Whatever the future may bring forth, it is certain that there is no present sign of abatement to the increasing consumption of revenue by taxes. Such charge continues to grow, both absolutely and in relation to the growth of revenue, at a rate that may well fill the railroad manager with dismay.

The following table, showing the revenues and taxes of the entire railroad system of the United States for stated calendar years since the first tabulation of railroad tax payments was made, affords data for an instructive and interesting study of the railroad tax question.

	Gross Revenue	Net Revenue	Taxes
1880....	$ 615,401,931	$241,909,617	$13,283,819
1885....	765,310,519	245,610,544	20,878,449
1890....	1,078,835,339	311,800,356	29,866,013
1895....	1,092,395,437	283,765,351	39,440,103
1900....	1,501,695,378	434,888,500	48,358,936
1905....	2,112,197,770	685,464,488	63,936,774
1910....	2,805,093,785	905,423,673	108,214,968
1911....	2,827,026,226	896,266,278	115,351,138
1912....	3,062,860,941	960,083,678	123,822,798

During the thirty-two years for which reliable figures are obtainable railroad taxes increased more than nine fold. This was the period of our greatest industrial and national expansion. Railroad business increased at a rate of speed and to dimensions without parallel in history, and the exigencies of the traffic compelled the rebuilding and still again the rebuilding of the railroads, until to-day, scarcely a trace is left of the system as it was in 1880. But during this period of tremendous activity railroad gross revenue increased only about two-thirds as fast, and railroad net capitalization, which approximates the cost of the properties only about one-third as fast as railroad taxes increased.

In 1880 the railroads in general practiced comparatively little operating economies as understood to-day. Ten years later, the fierce competition between the carriers having lowered revenue to such an extent that the margin of profit was rapidly disappearing, there began an era of competition through systematic operating economies. To-day every item of outlay, big or little, is subjected to the closest scrutiny, with a view to lowering to the minimum the cost of operation. It is estimated that the saving thus far effected is equivalent to an augmentation of the net revenue of the railroads by as much as twenty-five per cent. But notwithstanding this augmentation, plus the natural increment to net revenue from growth of business, the increase of taxes outstripped that of net revenue two to one.

During the thirteen completed years of the present century, railroad taxes increased about 156 per cent. In the same period, gross revenue increased 104 per cent, net revenue 121 per cent, and net capitalization 65 per cent. In the last seven years, during which the railroads passed through one of the worst periods of reaction in their history, and throughout which capital was exceedingly shy of railroad investment, the increase in railroad taxes averaged about $9,000,000 annually, an amount sufficient for a liberal return on $200,000,000 of much needed capital. The rate of increase for those years was about 94 per cent; in gross revenue it was about 45 per cent, in net revenue about 40 per cent and in net capitalization, about 46 per cent.

In other words, since the beginning of the century, taxes have increased 1½ times as fast as gross revenue, about 1 1-3 times as fast as net revenue and almost 2½ times as fast as net capitalization, while for the last seven years they increased more than twice as fast as either gross revenue or net capitalization and more than 2 2-3 times as fast as net revenue.

Such excessive tax increases could produce—undoubtedly they have produced—serious shrinkage of railroad values. The inevitable effect of such shrinkage on railroad credit is suggested by what follows.

If it be assumed that in lieu of all other taxation specific taxes were levied on railroad gross revenue alone, the two items would fluctuate in equal ratio, and the net return available for interest on capital would be so increased as to make railroad securities among the most attractive kind of investments. Conversely, the progressive consumption of revenue by taxes cannot but have had a corresponding detrimental effect on railroad security values. A few simple calculations will help to sustain this argument.

On the basis of the rate of increase of the gross revenue of 1912 over that of 1880 the addition to net revenue would amount to $44,119,874, say 3.04 per cent on the net capitalization of 1912. On the basis of the rate of increase of the gross revenue of 1912 over that of 1900 the addition would amount to $25,170,569, and on the basis of the rate of growth in the last seven years it would amount to $30,814,476; the rate of the

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addition to return on net capitalization being 1.74 per cent in the former case and 2.12 per cent in the latter. The actual net return on railroad capital in 1912 was somewhat less than 5.8 per cent; the net amount paid in dividends and interest, all duplications due to intercorporate holdings of securities being eliminated, was less than five per cent.

The excess consumption of revenue by taxes, comparing 1912 with 1880, is equivalent to placing on the railroads a lien of $882,240,000 of five per cent securities taking precedence of their first mortgage bonds. Comparing 1912 with 1900 the excess represents a lien of over $500,000,000, and comparing with 1905 it represents a lien of over $616,000,000. In other words, had taxes grown in no greater ratio than gross revenue, capital to one or another of the amounts stated could have been readily obtained to finance the betterments and developments so urgently called for by the increasing multiplication of the traffic.

The tax question may be studied at closer range by reducing revenues and taxes to the per mile of road basis and comparing the results. This is done in the following table. The last two columns are the most instructive. They show to what extent the requirements of taxation have consumed and are consuming progressively increasing proportions of both gross and net revenue from railroad operation.

	Gross per Mile.	Net per Mile.	Taxes per Mile.	Ratio of Taxes to Revenues. Gross. P. C.	Net. P. C.
1880.....	$ 7,307	$2,872	$158	2.16	5.50
1885.....	6,206	1,996	169	2.72	8.47
1890.....	6.829	1,974	189	2.77	9.57
1895.....	6,097	1,584	220	3.61	13.88
1900.....	7,827	2,267	252	3.22	11.12
1905.....	9,801	3,181	297	3.03	9.34
1910.....	11,512	3,955	444	3.86	11.23
1911.....	11,427	3,865	467	4.09	12.08
1912.....	12,230	4,076	494	4.04	12.12

After 1880, owing to great over-construction of railroads and consequent reckless competition for business, traffic rates shrank so much, and with them the per mile revenue, that the rapid multiplication of the traffic, doubling in volume about every ten years, did not enable the railroads to recover their lost ground in per mile gross revenue until about the end of the last century, nor in per mile net revenue until a few years later. Compared with 1880 the per mile gross revenue for 1900 shows an increase of $520, while the per mile net revenue shows a decrease of $605. Taxes increased steadily year by year, their growth for the period amounting to $94 per mile. They consumed $18.08 of every $100 added to the gross revenue, and increased to $701 per mile the falling off in net return available for capital. The total falling off in net return, computed on the basis of mileage operated in 1900, was $134,395,262—say 1½ per cent on the net capitalization of 1900. Taxes contributed 13.42 per cent, or $18,035,028, to this lowering of railroad credit—the amount contributed being about one-fifth of one per cent on the net capitalization or five per cent on a capital of $300,700,000.

Since 1900 the consumption of gross revenue by taxes has not been so heavy relatively as in the previous 20-year period, amounting for the thirteen years of the present century to about $5.50 out of every $100 added to the revenue. Also the extra consumption of net revenue has been largely offset by the operating economies which in 1900 began to be practiced universally by the railroads, and which were particularly effective in the years before the panic; consequently it has never since assumed so threatening an aspect as in 1895. But it promises to equal or exceed that record within the next few years unless the appetite of the tax ogre is curbed. Since 1900 net revenue has increased $1,809 per mile and taxes $242 per mile, the rate of increase being about 80 per cent in net revenue and about 96 per cent in taxes. In other words, taxes have consumed during the period $13.38 of every $100 added to the net revenue whether through natural increment or through operating economies.

In the country at large the rate of taxes paid by the railroads on the assessed value of their property is more than twice as great as the rate on all property. We tax them as private concerns and regulate them as public highways. We catch them both coming and going. On one side the growth of their revenue is restricted by regulation of the rates they may charge for transportation and on the other a progressively increasing proportion of the same revenue is consumed by taxation. In effect it is as if the net return on capital were being gradually extinguished by process of amortization. Net return governs railroad values and directly influences capital seeking investment. During the last six years it has been virtually impossible for the railroads to get sufficient money for their necessary extensions, improvements and developments.

More than 80 per cent of the taxes are levied on railroad values, mainly property values, and of course, these have increased and are increasing prodigiously. But the growing disproportion between the tax requirements and the available revenue has a tendency to retard the growth of values or even to cause a shrinkage of values. Thus the legitimate purpose of taxation is likely to be defeated, and what is vastly more important, the scaring of capital is likely to halt the progress of the nation.

The right to regulate carries with it the duty to protect. Regulation and taxation are looked after by different bureaus or departments of government. It should not be hard to get them together, in the interest of the square deal, and to have them agree on a plan of rate regulation and taxation that would operate more consistently and equitably than the present incongruous system does. Taxes must be raised, but they should be regulated by the ability to pay. That is to say, whenever increase in taxation becomes necessary, a corresponding increase in the ability to meet the charge—in the case of the railroads, higher transportation rates—should be authorized.

As the railroads by consolidation and expansion have assumed more and more an interstate character they call for interstate equality of taxes and for congruity of tax methods between the States. If the taxing power, so far as it relates to railroads, were centered in a national board under some agreement that would make up to the States for the right surrendered, the situation would be vastly improved. Working in unison with the Interstate Commerce Commission, such a board could be depended upon to give to Caesar what belongs to Caesar without unduly penalizing the railroads.

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The Commission's Statistics of Steam Railways for the Year Ending June 30, 1912

THIS abstract is based upon compilations covering the fiscal year ended June 30, 1912, made from the annual reports of carriers having gross operating revenues of $100,000 or more for the year and also of railway companies owning property operated by the same carriers under lease or other agreement, which have been made in advance of the completion of the Twenty-fifth (or 1912) Annual Report on the Statistics of Railways in the United States. The omission of returns for small roads (having operating revenues below $100,000) prevents the showing of items comparable with complete figures for 1911. None of the statements include returns for switching and terminal companies. The figures given in the abstract may be somewhat modified by revision before they are presented in the full report for 1912.

Mileage.

On June 30, 1912, the roads covered by this abstract represented 240,238.81 miles of line operated, including 10,824.60 miles used under trackage rights. The aggregate mileage of railway tracks of all kinds covered by operating returns for these roads was 360,714.24 miles. This mileage was thus classified: Single track, 240,238.81 miles; second track, 24,929.51; third track, 2,511.76; fourth, fifth, and sixth tracks, 1,783.97; yard track and sidings, 91,250.19. These figures indicate, for the roads under consideration, an increase of 8,925.52 miles over corresponding returns for 1911 in the aggregate length of all tracks, of which increase 3,167.43 miles, or 35.49 per cent, represent yard track and sidings.

Equipment.

It appears, from the annual reports submitted to the Commission by the roads covered by this abstract, that there were 61,250 locomotives in their service on June 30, 1912, an increase of 979 over corresponding returns for such roads for the previous year. Of the total number of locomotives, 14,206 were classified as passenger, 36,600 as freight, 9,475 as switching, and 969 were unclassified.

The total number of cars of all classes in the service of such roads was 2,368,658 (or 25,245 more than on June 30, 1911), which equipment was thus assigned: Passenger service, 50,606 cars; freight service, 2,203,128; company's service, 114,924. The figures given do not include so-called private cars of commercial firms or corporations.

Of freight service, there were classified 2,202,966, as follows:

Description	Number.	Aggregate capacity. Tons.
Box	1,002,461	35,975,288
Flat	146,050	4,960,766
Stock	76,392	2,333,976
Coal	852,720	36,588,731
Tank	7,705	310,348
Refrigerator	30,681	950,530
Other cars in freight service	86,867	3,498,287
Total	2,202,966	82,647,959

It appears that the average number of locomotives per 1,000 miles of line was 255, and the average number of cars per 1,000 miles of line, 9,860. The number of passenger-miles per passenger locomotive was 2,263,019, and the number of ton-miles per freight locomotive was 7,077,428.

The returns indicate that the number of locomotives and cars in the service of the carriers under consideration aggregated 2,429,908, of which 2,410,440, or 99.20 per cent as against 99.01 per cent in 1911, were fitted with train brakes, and 2,425,265, or 99.81 per cent as against 99.77 per cent in 1911, were fitted with automatic couplers. Of the 2,203,128 cars in freight service on June 30, 1912, the number fitted with train brakes was 2,194,694 and the number fitted with automatic couplers was 2,199,301.

Employes.

The total number of persons reported as on the pay rolls of the steam roads of the United States on June 30, 1912 (not including those in the employ of the roads the gross operating revenues of which were reported as less than $100,000 or those in the service of switching and terminal companies) was 1,699,218, or an average of 707 per 100 miles of line. As compared with corresponding returns for June 30, 1911, there was an increase of 45,987 in the total number of such railway employes. There were 63,558 enginemen, 66,208 firemen, 49,051 conductors, 135,959 other trainmen, and 39,530 switch tenders, crossing tenders, and watchmen.

The complete report will include summaries showing the average daily compensation of 18 classes of employes for a series of years and also the aggregate amount of compensation reported for each of the several classes. The total amount of wages and salaries reported as paid to railway employes during the year ended June 30, 1912, for the roads under consideration was $1,243,113,172.

Capitalization of Railway Property.

On June 30, 1912, according to the annual reports submitted to the Commission by roads having gross operating revenues of $100,000 or more, together with returns made in reports filed of their non-operating subsidiary lines, the par value of the amount of railway capital outstanding was $19,533,750,802. This amount includes capital held by the railway companies concerned, as well as by the public. Of the total amount of such capital outstanding there existed as stock $8,469,560,687, of which $6,882,813,008 was common and $1,586,747,679 was preferred; the remaining part, $11,064,100,115, representing funded debt, consisted of mortgage bonds, $8,019,700,886; collateral trust bonds, $1,279,128,266; plain bonds, debentures, and notes $1,067,567,350; income bonds, $263,441,054; miscellaneous funded obligations, $116,170,300; and equipment trust obligations, $318,182,259.

Of the total capital stock outstanding for the roads under consideration, $2,909,693,873, or 34.35 per cent, paid no dividends. The amount of dividends declared during the year (by both operating and non-operating companies represented in this statement) was $400,432,752, being equivalent

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to 7.20 per cent on dividend-paying stock. The average rate of dividends paid on all stocks outstanding pertaining to the roads under consideration was 4.73 per cent. No interest was paid on $808,464,701, or 7.52 per cent, of the total amount of funded debt outstanding (other than equipment trust obligations).

Investment in Road and Equipment.

The figures presented under this caption include returns for investment in road and equipment, shown by the operating roads covered by this abstract, as well as by their subsidiary non-operating roads (leased, operated under contract, etc.). The expenditures for additions and betterments, as well as the expenditures for new lines and extensions, during the fiscal year 1912 are analyzed in the following tabular statement:

Investment to June 30, 1912			$15,895,657,969	
Investment to June 30, 1911			15,518,264,612	
Increase 1912 over 1911				$377,393,357
	Expenditures for additions and betterments.	Expenditures for new lines and extensions.		
From cash or other working assets	$187,976,646	$59,872,304		
From special appropriations	32,553,291	183,613		
Through issue of securities	113,592,193	124,498,432		
Unassigned	2,134,855	3,554,933		
Total	$336,256,985	$188,109,282		
Total expenditures during year			$524,366,267	
		Credits.		
Property retired or converted		$67,371,604		
Adjustments		17,290,466		
Difference between record value of grantor and purchase price of grantee in case of roads sold, merged, consolidated, etc.		62,310,840		
Total			146,972,910	
Net increase during year				$377,393,357

Public Service of Railways.

The number of passengers carried during the year ended June 30, 1912, by roads represented in this abstract was 994,158,591. The corresponding number for the year ended June 30, 1911, was 987,710,997. The increase in the number of passengers carried during the year over corresponding returns for 1911 was 6,447,594.

The passenger mileage, or the number of passengers carried one mile, reported by roads represented in this statement, was 33,034,995,866. The corresponding return for 1911 was 73,465,336 more. The number of passengers carried one mile per mile of road was 139,356, as against 142,859 for the preceding year.

The number of tons of freight reported as carried (including freight received from connections) by roads represented in this statement, for the year ended June 30, 1912, was 1,818,232,193, while the corresponding figure for the previous year was 1,753,189,939, the increase being 65,042,254.

The ton mileage, or the number of tons carried one mile, as reported by the carriers under consideration for the year ended June 30, 1912, was 262,955,605,123. The corresponding ton mileage as reported for the year ended June 30, 1911, was 253,456,389,237, from which it will be seen that the increase in the ton mileage for the year ended June 30, 1912, over the returns for 1911, as applying to the roads represented in this abstract, was 9,499,215,886. The number of tons carried one mile per mile of road for the year ended June 30, 1912, was 1,108,578, as against 1,088,314 for the preceding year. The average number of tons of freight per train-mile was 409.29. The corresponding figure for the preceding year was 380.17.

The average receipts per passenger per mile, as computed for the year ended June 30, 1912, for the roads covered by this statement, were 1.985 cents; the average receipts per ton per mile, 0.743 cent. The passenger service train revenue per train-mile was $1.30.404; the freight revenue per train-mile was $3.04.015. The average operating revenues per train-mile were $2.30.201. The average operating expenses per train-mile were $1.59.544. The ratio of operating expenses to operating revenues was 69.30 per cent.

Revenues and Expenses.

It should be noted that, as in the case of other figures in this abstract, the revenues and expenses shown below exclude returns for roads the gross operating revenues of which were less than $100,000 for the year. The operating revenues of the railways in the United States for the year ended June 30, 1912, herein represented (average mileage operated 237,809.09 miles) were $2,826,917,967; their operating expenses were $1,958,963,431. The corresponding returns for 1911 (average mileage operated 234,366.14 miles) were: Operating revenues, $2,772,733,828; operating expenses, $1,901,399,475. The following figures present a statement of the operating revenues for 1912 in detail:

Freight revenue	$1,956,802,927
Passenger revenue	657,422,999
Excess baggage revenue	7,473,128
Parlor and chair car revenue	658,800
Mail revenue	50,674,758
Express revenue	72,070,758
Milk revenue (on passenger trains)	8,323,683
Other passenger revenue	5,228,969
Switching revenue	29,331,726
Special service-train revenue	2,078,910
Miscellaneous transportation revenue	6,174,062
Total revenue from operations other than transportation	27,367,678
Joint facilities—Dr.	918,586
Joint facilities—Cr.	3,328,155
Total operating revenues	2,826,917,967

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Operating expenses, as assigned to the five general classes, were:

Maintenance of way and structures	$363,495,583
Maintenance of equipment	448,303,785
Traffic expenses	60,568,586
Transportation expenses	1,013,340,697
General expenses	73,254,780
Total operating expenses	1,958,963,431

With minor eliminations from the figures given above, operating revenues per mile of line operated (including line operated under trackage rights) averaged $11,881 and operating expenses $8,234 for the year.

Condensed Income Account and Profit and Loss Account.

There is given below a condensed income account and profit and loss account of operating roads, the gross operating revenues of which were $100,000 or more for the year ended June 30, 1912. A similar statement follows for non-operating roads (leased, operated under contract, etc.) controlled by the operating roads described. The statements omit returns for a few roads, the reports of which were not sufficiently complete for inclusion therein. The accounts of the operating roads include both operating and financial transactions, while the accounts of the non-operating roads are confined for the most part to receipts and payments under leases, contracts, and agreements. For a number of items, such as dividends, taxes, etc., both statements must be taken into consideration in order to learn the aggregates of such items for the railways of the United States therein represented. Thus the aggregate of dividends declared during the year, $400,308,609, includes those declared out of current income and those declared from surplus both by the operating roads and by the non-operating roads. This amount includes dividends declared on railway capital stock owned by other railway companies.

Operating Roads.

Income Account.

Rail operations:		
Operating revenues	$2,826,917,967	
Operating expenses	1,958,963,431	
Net operating expenses		$867,954,536
Outside operations:		
Revenues	$63,527,073	
Expenses	62,489,614	
Net revenue from outside operations		1,037,459
Total net revenue		$868,991,995
Taxes accrued		113,122,509
Operating income		755,869,486
Other income		255,611,495
Gross income		$1,011,480,981
Rents, interest, and similar deductions from gross income		609,661,490
Net corporate income		401,819,491
Disposition of net corporate income:		
Dividends declared from current income	$246,372,011	
Appropriations for additions and betterments	37,186,102	
Appropriations for new lines and extensions	77,082	
Appropriations for other reserves	5,463,269	
Total		289,098,464
Balance to credit of profit and loss		$112,721,027

Profit and Loss Account.

Credit balance on June 30, 1911		$1,065,793,723
Credit balance for year 1912 from income account		112,721,027
Total		$1,178,514,750
Dividends declared out of surplus		100,433,571
Difference		$1,078,081,179
Appropriations for additions and betterments	$4,274,626	
Appropriations for new lines and extensions	106,542	
Appropriations for other reserves	3,020,920	
Other profit and loss items—debit balance	16,449,742	
Total		23,851,830
Balance credit June 30, 1912, carried to balance sheet		$1,054,229,349

Nonoperating Roads.

Income Account.

Gross income from lease of road	$124,533,101	
Salaries and maintenance of organization	352,898	
Taxes accrued	6,777,870	
Net income from lease of road		$117,402,333
Other income		6,495,874
Gross income		$123,898,207
Interest, and similar deductions from gross income		69,754,356
Net corporate income		$54,143,851

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Disposition of net corporate income:		
Dividends declared from current income	$37,556,473	
Appropriations for additions and betterments	1,067,278	
Appropriations for new lines and extensions	16,943	
Appropriations for other reserves	16,783	
		38,657,477
Total		$15,486,374
Balance to credit of profit and loss		
PROFIT AND LOSS.		
Credit balance on June 30, 1911		$66,257,339
Credit balance for year 1912 from income accouut		15,486,374
		$81,743,713
Total		15,946,554
Dividends declared out of surplus		$65,797,159
Difference	$1,173,439	
Appropriations for additions and betterments		
Appropriations for new lines and extensions	115,000	
Appropriations for other reserves	11,117,804	
Other profit and loss items—debit balance		12,406,243
Total		$53,390,916
Balance credit June 30, 1912, carried to balance sheet		

The complete report will include a summary showing the total taxes and assessments of the railways of the United States by States and Territories; also an analysis showing the bases of assessment.

Personal

B. L. Winchell.

B. L. WINCHELL has resigned as one of the receivers of the St. Louis and San Francisco, to become director of traffic of the Union Pacific system, with headquarters at Chicago. The change became effective on July 14th.

While Mr. Winchell's jurisdiction will extend over the entire Union Pacific system, he will have no official title on the San Pedro, Los Angeles and Salt Lake because the Union Pacific owns only a half interest in this road. He will, however, act in an advisory capacity regarding traffic matters to the officers of the Salt Lake Route, which will become under the new conditions a more important factor in transcontinental business than it has been heretofore.

Mr. Winchell began railway work in July, 1874, as a clerk in the office of the superintendent of machinery of the Hannibal and St. Joseph. He was subsequently clerk in the auditor's office of that road, chief clerk in the general freight and ticket office of the Atchison and Nebraska, and assistant general passenger agent of the latter road until April, 1880, when he was made chief clerk in the general passenger department of the Kansas City, Ft. Scott and Gulf and the Kansas City, Lawrence and Southern Kansas. Three months later he was advanced to assistant general passenger and ticket agent of those roads, and from June, 1882, to May, 1895, he was assistant general passenger and ticket agent of the Kansas City, Ft. Scott and Memphis and the Kansas City, Memphis and Birmingham. He was then for three years general passenger and ticket agent of the Union Pacific, Denver and Gulf and the Denver, Leadville and Gunnison. On May 1, 1898, Mr. Winchell went to the St. Louis and San Francisco as general passenger agent, resigning in December of that year to become vice-president of the Coloreda and Southern. He returned to the Kansas City, Ft. Scott and Memphis system in October, 1900, as president and general manager, and in August, 1902, he was made vice-president and general manager of the St. Louis and San Francisco system. In October of the following year he was chosen first vice-president of the St. Louis and San Francisco system, third vice-president of the Chicago, Rock Island and Pacific, and vice-president of the Chicago and Eastern Illinois and Evansville and Terre Haute. He was elected president of the Chicago, Rock Island and Pacific in April, 1904, and on December 1, 1909, was made president of the St. Louis and San Francisco lines and the Chicago and Eastern Illinois, which position he held until his recent appointment as one of the receivers of the St. Louis and San Francisco.

B. L. WINCHELL.

William C. Nixon.

WILLIAM C. NIXON, receiver and chief operating officer of the St. Louis and San Francisco Railroad, with headquarters at St. Louis, is one of the forceful type of men who

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W. C. Nixon.

have by their own ability worked their way to the top rung of the ladder. Mr. Nixon is considered to be one of the most efficient and broad-gauged railroad officials in the country.

Mr. Nixon was born February 15, 1861, at Earlville, Ill. His father, William Nixon, was a lawyer of that place, and his mother was Sarah (Musselman) Nixon.

His education was obtained at the public schools of Washington, Illinois. At an early age he began work. His first railroad experience being as a bridge carpenter in 1878, for the B. and M. Railroad in Nebraska. He then entered the service of the Atchison-Topeka and Santa Fe Railroad at Emporia, Kans., as night watchman for a year, and then became clerk for a year at the station at Albuquerque, New Mexico. His next promotion was agent at Las Cruces, N. M., afterwards holding position of agent at Albuquerque, subsequently becoming chief clerk for the division superintendent, San Marcial, N. M. In 1885 he was advanced to train master of the Southern Kansas Railway, remaining in that position until 1889, when he was transferred to Kansas City as superintendent of terminals there, remaining in that office for one year.

He next became superintendent of the Chicago Division, and next superintendent of terminals in Chicago until July 1, 1896, and for the succeeding six months was general agent, freight department, located at Chicago. The next three years he was superintendent of the lines between Chicago and Kansas City and in 1900 was transferred to Galveston as general superintendent of the Gulf, Colorado and Santa Fe Railroad, which position he held until 1902, and was vice-president and general manager of the Gulf, Colorado and Santa Fe until July 31st, 1906, when he was appointed vice-president and general manager of the Frisco Lines.

In May 1, 1911, Mr. Nixon was appointed senior vice-president of the Frisco, and May 27, 1913, he was appointed chief operating officer under the receivership. July 14, 1913, he was appointed receiver and chief operating officer.

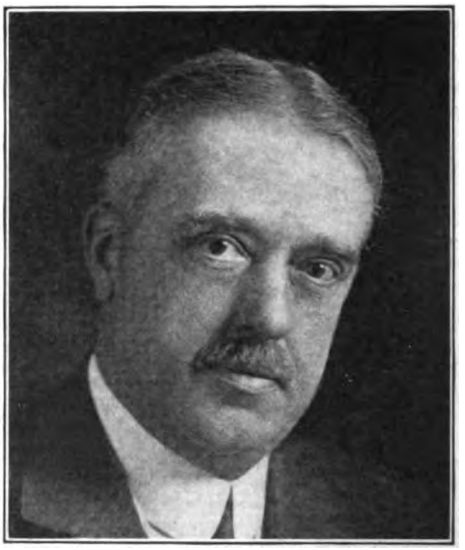
Mr. Nixon is a member of the St. Louis Club, the Noonday Club, and Mercantile Club of St. Louis, also of the Pickwick Club of New Orleans, the Aziola Club of Galveston, and the Dallas Club of Dallas.

He was married September 13, 1891, to Hettie E. Pitcher, of Brooklyn, Mich., and they have one son, Jack Nixon.

William B. Biddle.

WILLIAM B. BIDDLE, receiver and chief traffic officer of the St. Louis and San Francisco Railroad, is recognized throughout the United States as one of the most able and efficient traffic men in this country.

Mr. Biddle served in his early railroad career as station agent for the Santa Fe Railroad at Emporia, Kans. He was later appointed division freight agent at Albuquerque, N. M., and afterwards assistant general freight agent at Topeka, Kans. He culminated his career with the Santa Fe as freight traffic manager with headquarters at Chicago, in 1905, when he left its service to become vice-president of the Rock Island Railroad, which position he held until 1909, when he came to the St. Louis and San Francisco.



W. B. Biddle.

May 27, 1913, under the receivership of the St. Louis and San Francisco Railroad, Mr. Biddle was appointed chief traffic officer and July 14, 1913, he was appointed receiver and chief traffic officer.

Alexander Robertson.

ALEXANDER ROBERTSON, late president of the Western Maryland, has been selected by President B. F. Bush, of the Missouri Pacific-Iron Mountain system, to be his assistant in place of Finley J. Shepard, resigned. The appointee is familiar with this territory, having worked in this section for a number of years, and his appointment will be received with great favor by the officials and employes, as he is a man of wonderful personal popularity with all who have worked with or for him. In fact, one of the striking elements of his success has been his enjoyment of the complete confidence of his men and

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ALEXANDER ROBERTSON.

his unfailing fairness in treating with them. He is a strong believer in promoting to vacancies men from the ranks.

Alexander Robertson was born in Albany, N. Y., in 1860, and began his railroad career with the Fitchburg road in 1885. He has worked his way from the ground up, and in 1897 went to the Wabash, on which railroad he was serving as superintendent when in August, 1903, he was made manager of operations of the Western Maryland and the West Virginia Central and Pittsburgh railways, which were then separate properties, but have since been consolidated. The Terminal Railroad Association of St. Louis in looking for a man to take charge of their operations during the heavy traffic that it was known the World's Fair would develop, selected Mr. Robertson as the right party and appointed him general manager. The remarkable success with which he handled that traffic has been commented upon in most complimentary terms by railroad men in all sections of the country. In November, 1905, the Western Maryland, whose properties had then been unified, selected him as their general manager in charge of both transportation and traffic, and in March, 1907, he was elevated to be vice-president of the company. When Mr. B. F. Bush, the president of the Western Maryland, was selected to head the Missouri Pacific-Iron Mountain system in April, 1911, Mr. Robertson was chosen by the directors to be his successor. He resigned last January.

Joseph T. Richards.

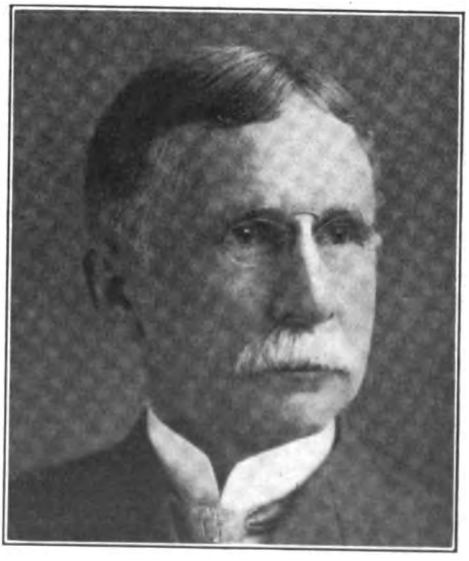
JOSEPH T. RICHARDS, recently appointed consulting engineer of maintenance of way, of the Pennsylvania Railroad, was born near Rising Sun, Cecil County, Md., on February 12, 1845. He was educated largely at the West Nottingham Academy, in Cecil County, Md.

Mr. Richards entered the service of the Pennsylvania Railroad Company in August, 1869, as rodman and transitman, during the construction of new shops at Altoona. On June 1, 1870, he was appointed supervisor from Harrisburg to Newport in which position he continued until October 16, 1871, when he accepted the position of chief engineer in locating and constructing minor railroads in Maryland. After completion of the Kent County Railroad he was made superintendent, auditor and secretary. On March 1, 1873, he became chief of locating engineers for several surveys over the Allegheny Mountains for an outlet for the Bedford and Bridgeport Railroad.

On May 25, 1874, Mr. Richards accepted the position of mining engineer with the Cambria Iron Company. He returned to the service of the Pennsylvania Railroad Company on March 1, 1875, as supervisor of Division No. 6, of the Main Line, extending from Newport to Granville. On March 20, 1876, he was promoted to assistant engineer, maintenance of way, of the Pennsylvania Railroad. From June, 1877, to March, 1883, he was principal assistant engineer of the United Railroads of New Jersey Division, and from March, 1883 to June 24, 1885, assistant to the chief engineer. On the last mentioned date he was appointed by the president assistant chief engineer.

On March 1, 1893, when a change was made in the organization, Mr. Richards became engineer of maintenance of way; on June 1, 1903, chief engineer of maintenance of way, and on June 16, 1913, he was made consulting engineer, maintenance of way. During his continued service as the head of this department of the railroad he has largely influenced the standards established for tracks, stations, bridges and operating yards.

In addition to his duties as head of the maintenance of way department of the Pennsylvania Railroad system east of Pittsburgh and Erie, Mr. Richards, by appointment of the president, was made chairman of several committees for working out the plans for the New York and Washington stations and yards. In this capacity he has given much attention to the study and development of railroad stations, yards and terminals, and has largely influenced the working plans as adopted for the New York, Long Island and Washington terminals.



JOSEPH T. RICHARDS.

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Luther Reese Zollinger.

LUTHER REESE ZOLLINGER, recently appointed engineer, maintenance of way, of the Pennsylvania Railroad, was assistant to division engineer, Philadelphia Division (West Philadelphia); November 1, 1895, to October 20, 1898, assistant supervisor, Division No. 8, Middle Division, P. R. R., at Spruce Creek; October 20, 1898, to January 1, 1900, supervisor, Division No. 28, Schuylkill Division, at Norristown; January 1, 1900, to May 1, 1902, supervisor, Division No. 1, Philadelphia Division, at West Philadelphia; May 1, 1902, to November 1, 1903, assistant to Principal Assistant Engineer, Pennsylvania Railroad Division, at Altoona; November 1, direct control of the maintenance of way department, in so far as may be necessary to insure the efficiency of the department and adherence to the standards of the company. He also has charge of the pre-

L. R. ZOLLINGER.

paration of all maintenance of way plans, the issuing of instructions in regard to the adherence to the same, and personally examines all bridges and other structures, reporting on their condition and making recommendations in connection therewith, and also with respect to other matters relating to the maintenance of way.

In addition to these duties Mr. Zollinger, in 1905-1907, was placed in charge of the construction of extensive yards and yard facilities at Morrisville on the New York Division and Shire Oaks on the Monongahela Division.

Mr. Zollinger is a member of the American Society of Civil Engineers.

George C. Koons.

GEORGE C. KOONS, recently appointed assistant engineer, maintenance of way, in charge of bridges and structures of the Pennsylvania Railroad, was born in Middletown, Pa., June 24, 1872. He received his education in the Reading, Pa., High School, from which he graduated in 1889.

Mr. Koons entered the service of the company in May, 1896, as a draughtsman on the Schuylkill

GEORGE C. KOONS.

Division. He went to Altoona in 1899, as a transitman, and on January 1, 1900, was appointed assistant supervisor in the Altoona yard. He was made assistant supervisor on the Middle Division on August 1, 1900, and in April, 1901, he was transferred to the Pittsburgh Division in the same capacity.

In May, 1901, Mr. Koons was made assistant supervisor of signals on the Philadelphia Division, and on January 1, 1902, he went to the Pittsburgh Division as assistant supervisor of signals. On February 1, 1901, he was appointed supervisor of the Monongahela Division. Subsequently he served as supervisor in Altoona, and on the Middle and Pittsburgh Divisions.

On June 16, 1913, Mr. Koons was appointed assistant engineer, maintenance of way, in charge of bridges and structures.

ARTHUR B. CLARK.

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Arthur B. Clark.

ARTHUR B. CLARK, recently appointed assistant engineer, maintenance of way, in charge of roadway and track of the Pennsylvania Railroad, was born at Green Village, Pa., October 1, 1867. He attended the local public schools, and afterward Mercersburg College, where he took a three years' preparatory course and then entered Lafayette College, from which he was graduated in 1891, receiving the degree of civil engineer.

During his summer vacations in 1889 and 1890 Mr. Clark was employed on the Pennsylvania Railroad as rodman, first entering the service July 1, 1889. After graduating he was employed from September 14, 1891, as rodman on the Philadelphia Division, at Philadelphia. On July 2, 1896, he was promoted to assistant supervisor, and served in that position on the Altoona and Pittsburgh Divisions. On July 1, 1900, he was promoted to the position of supervisor on the Baltimore Division, Northern Central Railway. On July 20, 1901, he was transferred to the Pittsburgh Division and located at Pittsburgh, in charge of the track work of the Pittsburgh yard, in connection with the construction of the New Union Station.

On December 15, 1905, Mr. Clark was promoted to assistant engineer of the Middle and Western Division, Philadelphia and Erie Railroad. He was subsequently transferred to the same position on the West Jersey and Seashore Railroad, thence to the Maryland Division of the Philadelphia, Baltimore and Washington Railroad, as assistant engineer. On January 15, 1910, he was promoted to the position of principal assistant engineer of the Philadelphia, Baltimore and Washington Railroad, and on June 16, 1913, he was made assistant engineer mainteance of way, in charge of roadway and track.

Noel W. Smith.

NOEL W. SMITH, who was recently appointed superintendent of the middle division of the Main Line of the Pennsylvania Railroad with headquarters at Altoona, Pa., was born at Williamsport, Pa., December 25, 1869. He attended the public schools of Williamsport.

Mr. Smith's first service for the Pennsylvania Railroad was performed as a student in telegraphy in the ticket office at Williamsport. He was employed as clerk in the Division Freight Agent's office at Williamsport, July 1st, 1887, where he worked until September 12, 1889, when he entered Lehigh University.

After graduating from Lehigh University, Mr. Smith re-entered the service of the Pennsylvania Railroad as rodman on the Sunbury Division, April 24, 1893. He served as assistant supervisor on the Baltimore Division, Northern Central Railway; Renovo Division and Williamsport Division of the Erie Division; Maryland Division, Philadelphia, Baltimore and Washington Railroad, and on experimental track work for the Chief Engineer of Maintenance of Way, at Harrisburg. On January 1, 1900, he was promoted as supervisor at Williamsport, and later was made supervisor at Middletown and Harrisburg, on the Philadelphia Division. On December 15, 1905, he was transferred to supervisor in the office of the Principal Assistant Engineer at Altoona, and on May 1, 1906, was promoted to assistant to the Principal Assistant Engineer, at Altoona.

On April 1, 1907, Mr. Smith was advanced to division engineer of the Middle Division. He was made superintendent of the Central Division, Philadelphia, Baltimore and Washington Railroad on January 15, 1910, and on June 16, 1913, he was promoted to superintendent of the Middle Division of the Main Line at Altoona, Pa.

Samuel Porcher.

SAMUEL PORCHER, who has been appointed purchasing agent of the Pennsylvania Railroad with headquarters at Philadelphia, was born in South Carolina. on December 21st, 1857, and was graduated from the University of Virginia in 1881.

Mr. Porcher entered the machine shops of the Pennsylvania Railroad Company as an apprentice

N. W. SMITH.

SAMUEL PORCHER.

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on January 27th, 1882. He went through a full shop course, including the test department, and was transferred in 1888 from the mechanical engineer's office to the office of the superintendent of motive power in Jersey City. In July of that year he was appointed assistant engineer, motive power department, United Railroads of New Jersey Division, in which position he remained until March 1st, 1894, when he was appointed assistant purchasing agent of the Pennsylvania Railroad Company. This position he held until his recent appointment.

E. W. Beatty.

E. W. BEATTY, who was recently appointed general counsel of the Canadian Pacific Railway with headquarters at Montreal, was born in 1877, at Thorold, Ont. He graduated from Toronto University in 1898, and from law at Osgoode Hill, and in 1901 was admitted to the bar. On the appointment of A. R. Creelman, K. C., as chief solicitor of the Canadian Pacific Railway in 1901, Mr. Beatty accompanied him to Montreal as assistant in the law department. Four years later he was appointed assistant solicitor and in 1910 was made general solicitor, which position he held until his recent promotion.

E. W. BEATTY.

Charles B. Foster.

CHARLES B. FOSTER has been appointed assistant traffic manager of the Canadian Pacific Railway with headquarters at Montreal. Mr. Foster was born at Kingston, N. B., in 1871. He was educated in the public schools and entered the service of the Canadian Pacific at St. John, N. B., as stenographer in the passenger department, April 1, 1891. In September, 1893, he was made traveling passenger agent and six years later became chief clerk in the passenger department. Mr. Foster was appointed district passenger agent at St. John in February, 1902, and in November, 1904, was transferred to the same office at Toronto, Ont. Four years later he was appointed assistant general passenger agent,

CHARLES B. FOSTER.

with headquarters at Vancouver, B. C. After holding this office over two years, he was promoted to general passenger agent at Winnipeg, Man., November 1, 1910. He served in that capacity until his recent appointment, July 1, 1913, as assistant passenger traffic manager of the Canadian Pacific Railway, eastern lines, with headquarters at Montreal, Quebec.

A. M. Reinhardt.

A. M. REINHARDT, who has become assistant general freight agent of the Atchison, Topeka and Santa Fe Railway, with headquarters at Los Angeles, Cal., was born in 1878, at Lawrence, Kansas. He received a common and high school education and entered the service of the Santa Fe in 1895, at San Jacinto, Cal. He was promoted to relief agent for the same road in

A. M. REINHARDT.

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1897, and was made cashier at Barstow, in 1899. From that year until 1903, he was successively agent at Temecula, agent at Perris, bill clerk at San Diego, and agent at Hanford. In 1903 he was made over-charge investigator and rate clerk in the claim department of the auditor's office, and in 1906, rate clerk in the general freight office. In the latter part of that year he became chief clerk in the general agent's office at Los Angeles and in 1908, chief clerk in the general freight agent's office at the same point. This position he held until his recent appointment as assistant general freight agent.

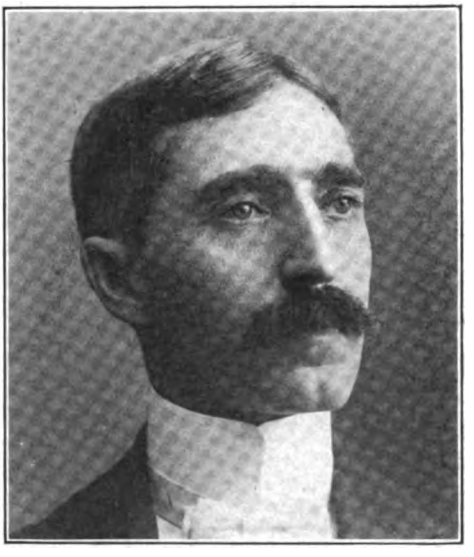
L. E. Abbott.

L. E. ABBOTT, recently appointed safety commissioner of the Oregon Short Line Railroad, was born in 1868, at Farmington, Utah. He received a common school education and later attended the University of Utah. He entered railway service as special officer for the Southern Pacific Company, during the work of building the Lucin cut-off across the Great Salt Lake. He retained this position until 1905, and later was engaged in special investigation work by the same road. He was appointed to his present position on June 1st.

James H. Hill.

JAMES H. HILL, who was recently elected vice-president, general manager and treasurer of the Galveston, Houston and Henderson Railway, entered railway service in 1878 as operator and later train despatcher for the Atchison and Nebraska Railroad. In 1880 he became chief operator of the Burlington and Missouri River Railroad of Nebraska, and in 1881, chief operator of the Kansas City, Ft. Scott and Gulf. In 1882, he was appointed superintendent of telegraph and chief clerk to the general superintendent of the Southern Kansas Railway, which position he held until 1888, when he became secretary to the Receivers of the Missouri, Kansas and Texas Railway and later secretary to the President and General manager of the same road. In 1896 he was made manager of the Galveston, Houston and Henderson Railroad, and later also assumed the positions of secretary and treasurer. In his new position as vice-president he still retains the title of general manager and treasurer, but drops that of secretary.

L. E. ABBOTT.



J. H. HILL.

Financial

The Currency Bill.

ASIDE from the current financial situation, the subject of greatest interest to business men at the present time, is the currency bill. Objections to this measure are multiplying, and it is worthy of note that representatives of the majority party are by no means unanimous as to the merits of the Owen-Glass bill, and also as to the expediency of presenting any bill at this time. The chief objection to the measure relates to the method of control.

The bill, as at present constituted, provides for complete Government control of the Federal Banking Board and does not allow the bankers any representation. Banking interests, almost unanimously, are opposed to this plan. No matter how conscientious and able the members of the Government Board might be, before they become really efficient a long process of education would be required, and in this process many mistakes would be made and mistakes effecting the banking and currency system of the entire country could inflict incalculable damage. The railroads have had abundant experience with control by commission and it is only in recent years that the Interstate Commerce Commission, a permanent board compared with the proposed banking board, has shown itself able to comprehend the problems with which

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they have to deal. When the Interstate Commerce Commission was first appointed, and for many years thereafter, it was practically devoid of power. Its mistakes were many and serious but they did not affect the railroads since the courts intervened.

To subject the banking interests of the country to such centralized control without allowing the Board to go through the necessary process of preliminary education would be a serious blunder. It is also urged that the notes provided for by the new bill should not be issued by the Government but by the regional reserve banks and the tendency to inflation through the re-discount provisions is pointed out.

Improvement in Stock Market.

THE stock market has shown persistent improvement during the past month. It has disregarded the renewal of hostilities in the Balkans, the well authenticated reports of crop damage and a variety of other factors which, were underlying conditions less fundamentally sound, would have seriously depressed quotations. The fact is that securities have fallen so far that at present prices the best stocks present most attractive bargains to investors. The money situation, while on its face discouraging, especially to new enterprises, contains elements of great interest. For the first time in our financial history the banks have made an effort to enforce conservatism upon borrowers in order to prepare for the financial stringency next fall. This has resulted in the curtailment of borrowing and in larger bank reserves. There is no reason to anticipate any trouble this fall and with the crop moving period past, large amounts of loan funds will be made available for new enterprises.

The Bond Market.

THE bond market is in a remarkable condition with prices apparently at the bottom. Investors can now obtain as high yield for their money on purchasing the best bonds as they would have been able to secure at any previous time in the last fifteen years. Even during the 1907 panic New York City bonds did not sell on a 4½ per cent basis. Out of a dozen of the active high grade railroad bonds dealt in on the New York Stock Exchange during July, five fell below the lowest prices of 1907. This decline in high grade bonds has been in progress ever since February. There is no question of the security involved in the bonds whose quotations have fallen so seriously. The security is perfect. It is simply a question of the absence of demand. Both in the United States and Europe the investment demand has been at a low ebb for six months. There is plenty of money for investment but the political unrest and lack of confidence in the future of large enterprises, together with threatening labor situation, has induced conservatism. The investor has also been over stimulated by the multitude of new issues, many of these offering extraordinary returns.

The General Business Situation.

THE general business situation in the face of tight money and the depressed investment market is excellent. The United States Steel Corporation made an excellent report for the last quarter, earnings rising $2,000,000 above the highest expectations. The unfilled tonnage of the corporation on June 30, 1913, was about the same as a year ago.

Railway traffic has suffered no diminution. It is likely that the preliminary estimates of 3,000,000,000 bushels for the corn crop will not be realized owing to the drought. The wheat market is about the same as last year and the oats crops will be somewhat reduced. On the whole, the outlook is for an average of products whose sale will furnish wide employment in other industries and whose effects will extend far into the next year.

Another encouraging feature of the situation is the fact that manufacturers have generally adjusted their plants to the new tariff which it is certain will be passed substantially as originally introduced. In spite of predictions of disaster it is believed that the industries affected will quickly adjust themselves to the new conditions and that business will continue without interruption.

The new financing announced by railroads and industrial corporations in June represented the total of $147,101,000. This is less than half of the total of June, 1912, which was $299,323,700. Of the securities issues in June, the railroads announced $126,692,200 and the industrials $20,408,800.

New Haven's Bond Issue.

THE New York, New Haven and Hartford directors have decided to ask the stockholders to authorize an issue of $67,552,400 of long term six per cent bonds. This is a frank recognition of the fact that the rate of interest has gone up and that the strongest corporation must pay the price demanded by the investor for money. It also marks a radical departure from the practice which has been so largely in vogue in recent years of deferring the inevitable interest payments by issues of short term notes whose successive maturities present vexatious financial problems. The New Haven bonds will be twenty-year debentures, convertible into stock at par at any time after five years from date, and not later than fifteen years from date. These debentures will be offered to holders of the present outstanding convertible debentures at par. Out of the proceeds of these bonds the $40,000,000 of five per cent one-year notes issued in November, 1912, will be taken up.

Railroad Earnings.

RAILROAD earnings continue to make good showings in gross. The gross earnings of all the railroads of the United States for the year ending June 30, 1913, were approximately $3,175,000,000, an increase of $300,000,000, or 10.5 per cent over those of 1912. Net earnings, after the payment of taxes, show also a large increase, the first since 1910. Reduced to a mileage basis the gross earnings for the year ending June 30, 1913, increased $1,090 and net earnings $378. The net earnings per mile of road for 1913 while much higher than 1911 and 1912 are below the figures of 1910. Since 1907 net earnings per mile have increased only $45 or a little more than 1 per cent, while gross earnings have increased 12 per cent. This difference in the relative increase of gross and net earnings shows how little of the profits resulting from the larger volume of traffic the railroads have been able to save for their stockholders.

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The Missouri Pacific's 1913 fiscal year showed $62,000,000 of gross earnings, nearly $10,000,000 above the figures of 1911 and $18,000,000 above the gross earnings of 1908. More than half the increase in gross earnings has been saved to net earnings. The new Missouri Pacific management under President B. F. Bush, on the basis of this year's business saved $4,340,000 in the transportation department as compared with the cost of moving traffic in 1911. The saving is 7 per cent of gross earnings and is equivalent to 5 per cent on $83,251,000 of Missouri Pacific stock outstanding. It is noteworthy in that it was made during a period when improvement work was in progress over the entire system and when economies on this account were difficult. The economies already made and which will be largely increased in the future, are showing about 17½ per cent return on the $25,000,000 spent on the property in the last two years. During the past year the Missouri Pacific has earned a surplus for its stock equal to a little more than 2½ per cent. In 1911 it showed a large deficit.

The Chicago and North Western closed its fiscal year on June 30, last, with earnings equal to about 10 per cent on its outstanding common stock as compared with 8.2 per cent in the previous year. For the fiscal year ending June 30, 1912, the North Western has only a small surplus over fixed charges and dividends. This year there will be a large amount to be put back into the property for improvements and betterments.

The preliminary report of the Southern Pacific indicates a surplus of 9.52 per cent on the stock. This compares with 7.9 per cent earned on the same amount of stock in the preceding year. The company reports gross earnings of $143,770,000 above the previous year's record. These large earnings have been made in spite of the damage to fruits from the frosts of last year, flood damage and reductions in revenue due to rate cutting.

The Seaboard Air Line Railway during May earned three times the interest on its income bonds. The company's full surplus for the fiscal year ending June 30, was $2,945,000, equivalent to 5 per cent on the $25,000,000 income bonds, and nearly 6.8 per cent on the $25,000,000 of preferred stock. It is believed that dividends on the preferred stock will soon be declared.

The Rock Island Railway Company earned a little more than 5 per cent on its stock during the last fiscal year. This is a slight reduction from the figures of the preceding year but in reality the earnings were much larger since the 1912 quotations were largely reduced. During the eleven months ending May 31, 1913, the Rock Island increased its maintenance expenses $2,576,000.

The gross earnings of the Wabash for the last fiscal year were $31,770,000, a gain of 12 per cent over last year, and a gain of 6.3 per cent over the best previous year in the history of the company. This remarkable advance in gross earnings was in spite of the fact that the improvement work representing an expenditure of more than $10,000,000 was in progress over the entire property. The past year for the Wabash has been one of high transportation cost because of these improvements. Owing to this fact net earnings have shown little increase but the net results will provide for all fixed charges on securities whose interest is now reckoned by the reserve, but will not be sufficient to cover interest on defaulted securities.

The Chesapeake and Ohio will earn 5.2 per cent on its stock for the last fiscal year which is little more than the amount of the dividend and has given rise to rumors of dividend reductions. For these earnings, moreover, extra dividends by the Hocking Valley and the Kanawha and Michigan are largely responsible.

The surplus of the Reading Companies can be estimated at about $15,500,000 or deducting sinking fund requirements $15,000,000 for the stock. Of this amount $12,000,000 is available for the $70,000,000 common stock, or 17½ per cent. The surplus for the present year is nearly twice that earned in the last fiscal year, owing to the fact that during the last year mining operations were suspended for a considerable time.

The earning statement for the Baltimore and Ohio for the year ending June 30, 1913, shows gross revenues of $101,556,132, an increase of $8,961,809. The net increase, however, was reduced to $100,000. The net revenues represent 7.13 per cent on the common stock as compared with 7.58 per cent of the preceding year. The showing would have been much more favorable had it not been for the disastrous floods in the West during March which caused a practical suspension of freight traffic for some time over a large part of the system as well as the loss of a large tonnage which would otherwise have been moved. The physical damage to the company's property is estimated at about $4,000,000. The Baltimore and Ohio is now one of the five great railway companies to show more than $100,000,000 of gross earnings. The others are the Pennsylvania, the New York Central, the Southern Pacific and the Atchison.

Legislation and the Efficiency of Railroads.

By WILLIAM MCCOMB.

IT has become a fixed idea in the minds of many of us that if we want anything ethical or material, all we need is an enactment of the legislature and the resultant law will give it to us.

We have clothed our law-making bodies with a kind of glorified omnipotence and in our thoughts vested their enactments with potential elements far beyond the justification of fact.

When we have a grievance against affairs politic or civic as they exist, we demand legislation to set them right. If, in the working out of basic economic laws, the results are not to our liking or profit, we rush to our universal cure-all, the law maker, as our grandmother did to her herb bag to cure our childhood ills, and with the same childlike trust accept the mixture, in the name of jurisprudence, with simple faith that it will purge our trade body of its troubles. So we go on putting statute law upon statute law for courts to interpret, until some modern philosopher might say, with apologies to Claxton, "of making statute books there is no end."

Through this method we have become a law-ridden, not a law-abiding nation. Indeed, many of our laws are passed to meet some supposed passing need, with as little concise study of their logical consequences as of thought to their enforcement.

Somebody will cry loud and strong for a law to regulate something or somebody, and the ever obliging legislature, with a weather eye to its political future, kindly passes the legislative sop, without thought either as to the practicability of

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the law, the logical outcome or the general consequences of its enforcement.

Elysium is probably a place with a fine climate. Angels are undoubtedly highly desirable people. Utopia should be longed for and sought after. The millennium will be as welcome as the flowers in May. But none of these can be delivered to us through the medium of a literary effort, beginning "The people of the state hereby enact, etc.," and followed by the Governor's signature.

All of this is not new, rather does it seem to be an inborn characteristic of man. The early history of the race records many efforts of feudal kings to damn by bull and imperial decree, but they had more excuse for the foolishness of their attempts than we of the twentieth century. It has become so much a habit to attempt the impossible by legislation, that we take no heed of underlying principles, physical, commercial or economic, but rave on with our useless, needless and impracticable enactments.

Whenever we discover a wrong, either fancied or real, or find a condition we do not understand, without attempting to understand it, we begin to legislate to change it. One of the most fruitful fields of legislative enterprise in the past years has been the transportation interests of the country. Transportation is a highly technical business, none more so, the most rapidly developed end of our national advancement, with a growth so rapid, so stupendous that even those engaged in the work sometimes fail to sense its real bigness and complexity, much less those not directly connected with it.

Without being in, we have attempted to be of the transportation business, because of its very intimate connection with our personal lives. No one has attempted by legislative decree, to say how rapidly bridges were to be built, steel to be made, vehicles to be constructed. Nor have we attempted to lay down rules for conducting these enterprises, and if it had been attempted those who were engaged in the particular businesses affected by this legislation would have risen up in holy wrath at these attacks on private rights and private property.

While we use the products of these mills and factories, we do not attempt to tell the owners how to conduct their business, because the conduct of the business does not enter very intimately into our lives, but because of the very intimacy of transportation and our dependence upon it, we try to assume a sort of a quasi-proprietary relation to it. Without any attempt at technical knowledge or experience in transportation affairs, we have used our utmost endeavor to assist by legislation in the management of transportation, and have called upon the legislative bull to right our wrongs, either real or fancied, without undertaking first to find out whether we were attempting to upset some mechanical law or change some physical fact.

What is a Practical Railway Man?

NO public official within recent times, has made a sadder spectacle of himself in his effort to patronize the labor vote, than has Governor Sulzer, of New York. In fact, he has so far over-reached himself, that he has irretrievably lost the respect of many of those who had only the friendliest feelings towards him at the time of his inauguration. His latest act, which has caused a feeling of dismay in those quarters where the effect of the appointment is best appreciated, has been the appointment of a locomotive engineer to the Board of the Up-State Public Service Commission. The "Journal of Commerce" asserts that:

"The appointment by Governor Sulzer of a locomotive engineer to be a member of the Second District, or "up-State" Public Service Commission, is nothing short of disgraceful. The excuse given for it is even more so. Governor Sulzer is quoted in all the dispatches from Albany relating to the appointment, which is fortunately subject to confirmation by the Senate, as saying that his nomination of this man Chase is 'in accordance with the promise made by the Democratic Party in its platform adopted in the last State convention as follows: 'We favor the appointment of a practical railroad man as Public Service Commissioner.'" Governor Sulzer may know what was meant by 'practical railroad man' in that platform. If it meant that a locomotive engineer or fireman, or a conductor or trainman, or some other workman on a railroad, should be appointed to that important office, then the offense of 'fooling the people' lies with the framers of the platform and the party convention that adopted it.

"Mr. Chase may be a highly competent and faithful engineer. He may be a man of intelligence and high character. It is nothing against him if he is not qualified for so high a public office and one requiring analytical power and keen and independent judgment on complex questions. It is simply impossible that, with the kind of experience and training that he has had and the position he occupies, he should be so qualified. The appointment is ridiculous, and it cannot be otherwise than the cheapest kind of demogogism, bidding for the political support of organized labor. It is of a piece with the Governor's approval of the 'full crew' bill in pursuance of a pre-election promise.

"No person of sense can believe that this appointment is made because Mr. Chase is qualified, or is believed by the Governor to be qualified, for the duties of Public Service Commissioner. He can have no possible evidence of it or reason for believing it, and his motive is transparent. It is a bid for the labor vote, for the support of the labor unions, of which the Order of Locomotive Engineers is one of the strongest in the State and one made up as a rule of intelligent men. It is no compliment to the workingmen of the State to assume that their support is to be bought for a political party by such an offer of a share in the spoils as this implies. They may be presumed to have convictions and principles of their own as citizens, and an intelligent interest in public questions. They know as well as anybody that a locomotive engineer is not qualified to serve as a Public Service Commissioner, and, though they cannot be expected to object to such an appointment, they ought to scorn the motive of it."

The Burdensome Restrictions of State Legislation.

RAILROAD managers will undoubtedly welcome the day, if it ever come, when the regulation of their properties will be centralized in the National Government. A striking, although amusing example of the unnecessary trouble to which conflicting state regulations

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often put the carriers, is referred to in a recent issue of the Boston "Evening Transcript," as follows:

"Railroad companies may frequently be pardoned for contending that their business is not all 'beer and skittles.' Recent legislation in Arkansas requires that passenger coaches running through that State shall, from May to November, be provided with window screens, and failure to thus equip them invites a penalty of from ten to twenty-five dollars a day. Some of the passengers object to them, but 'thus saith the law.' Oklahoma has also been busy, but her statute forbids the use of screens, so when a train approaches the dividing line it is pretty lively work to completely comply with the conflicting statutes. Screen laws have frequently been found embarrassing in more relations than one, but rarely have they been found so antagonistic as in this instance. As that involves interstate commerce cannot the United States settle it?"

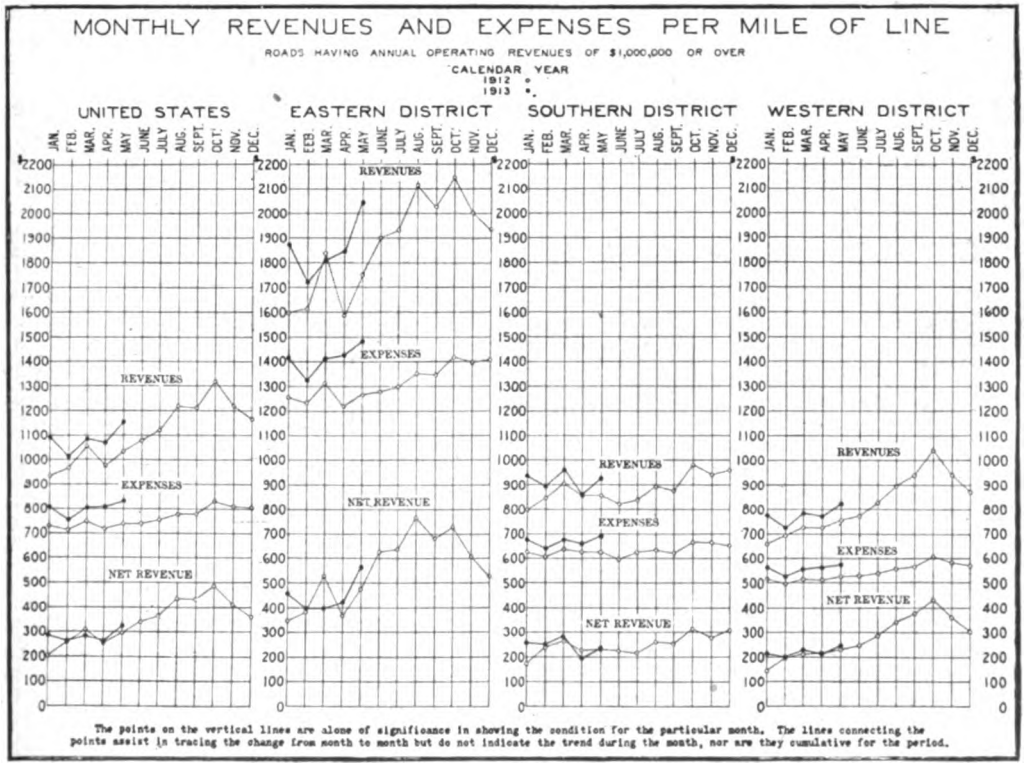
Electrification of Canadian Northern Pacific Railway Feeders.

THE Canadian Northern Pacific Railway has announced that it will electrify its branch lines from Kamloops to Vernon, B. C., and it is unofficially reported that the railway company has acquired the charter and rights of the Couteau Power Company, which has been engaged in the preliminary development of a hydro-electric plant near Ducks, B. C. The lines from Kamloops to Vernon, and from Lumley to Kelowna, in British Columbia, will be 132 miles long and are under construction as a branch line to the Canadian Northern Pacific Railway. The Canadian Northern Railway is rapidly linking up a transcontinental line across Canada. At present its lines are operated separately—the Canadian Northern Quebec Railway in the Province of Quebec, the Canadian Northern Ontario Railway in Ontario, the Canadian Northern Railway and the Canadian Northern Alberta Railway in the prairie provinces, and the Canadian Northern Pacific Railway in British Columbia. During 1912 track was laid on the Canadian Northern Pacific Railway from Sumas to Hope, 41.64 miles, making the total track laid on the line 78.25 miles. The line from Hope to Yellowhead Pass, 421.82 miles, is under construction.

Proposed Kansas Livestock Regulations.—It is reported that the railroads of Kansas will ask the Legislature this winter to enact a law to discourage the slaughter of calves in this State. Thousands of farmers in Kansas sell their calves to the butchers as soon as they are big enough to kill. This has reduced the number of full-grown cattle on the market and in a few years will set Kansas back as a beef State. With the calves butchered, the State has little to look forward to in the cattle business. It is the plan of the railroads to prevent the wholesale marketing of calves and premature cattle generally for the meat food supply.

Railway Business for May.

DURING May the railways of the United States received for their services to the public an average of $8,230,000 a day; it cost to run their trains and for other expenses of operation $5,920,000 a day; their taxes were


MONTHLY REVENUES AND EXPENSES PER MILE OF LINE
ROADS HAVING ANNUAL OPERATING REVENUES OF $1,000,000 OR OVER
CALENDAR YEAR
1912
1913
UNITED STATES
EASTERN DISTRICT
SOUTHERN DISTRICT
WESTERN DISTRICT
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
REVENUES
EXPENSES
NET REVENUE
The points on the vertical lines are alone of significance in showing the condition for the particular month. The lines connecting the points assist in tracing the change from month to month but do not indicate the trend during the month, nor are they cumulative for the period.

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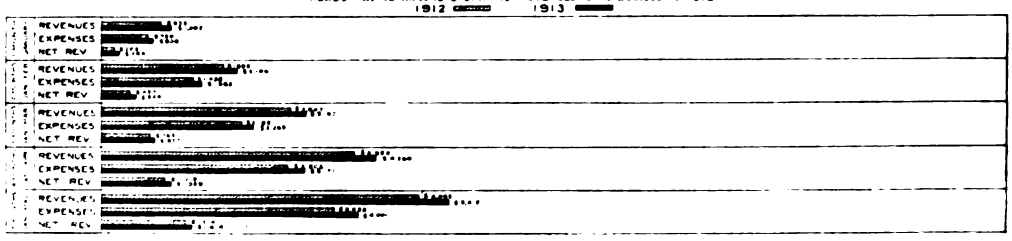
$341,500 a day; their operating income $1,972,322 a day for the 220,897 miles of line reporting, or at the rate of $8.93 for each mile of line for each day. Thus for every six dollars of their earnings which remained available for rentals, interest on bonds, appropriations for betterments, improvements and new construction, and for dividends, the railways had to pay more than one dollar in taxes.

All of these amounts are substantially greater than the similar returns for May, 1912. They are from the summary of the earnings and expenses compiled by the Bureau of Railway Economics from the monthly reports of the steam railways of the United States to the Interstate Commerce Commission. They include over 95 per cent ot the mileage and earnings of all the railways of the country.

DIAGRAM COMPARING FOR THE INDICATED PERIODS OF THE CALENDAR YEARS 1912 AND 1913
CUMULATIVE REVENUES, EXPENSES AND NET REVENUE PER MILE OF LINE
ROADS HAVING ANNUAL OPERATING REVENUES OF $ 1,000,000 OR OVER
1912 1913



Operation

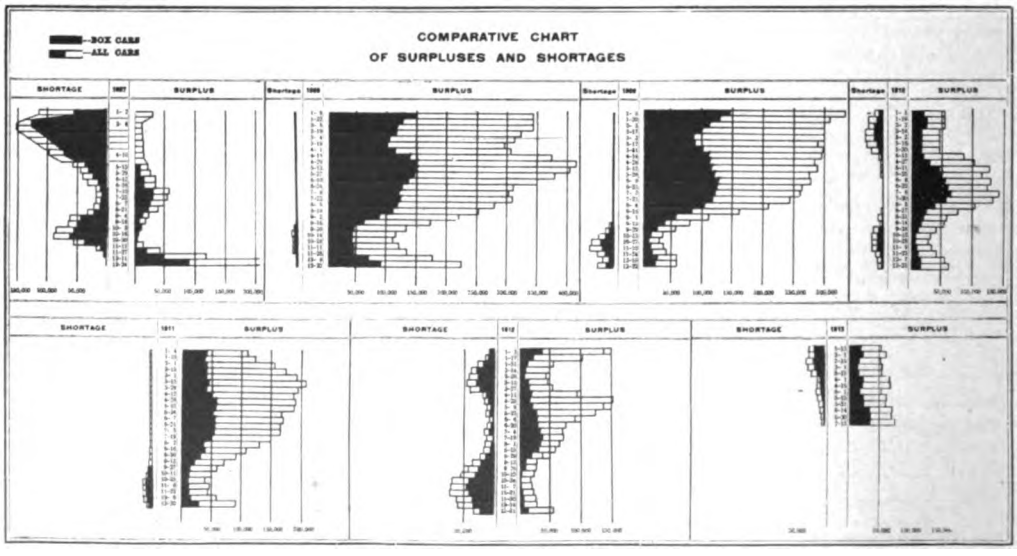
The Car Movement.

THE latest report of the American Railway Association regarding the car surpluses and shortages in the United States, shows that on July 15th, there was a surplus of 76,280 cars as compared with 70,740 on July 30th, and 75,389 on July 18, 1912. As compared with the preceding period, this shows an increase in the total surplus of 5,540 cars, of which 426 are box cars, 137 flat cars, 2,148 coal cars and 2,829 miscellaneous cars.

The increase in box car surplus is in Groups 1 (New England Lines), 2 (New York, New Jersey, Delaware, Maryland and Eastern Pennsylvania), 3 (Ohio, Indiana, Michigan and Western Pennsylvania), 6 (Iowa, Illinois, Wisconsin and Minnesota), and 9 (Texas, Louisiana and New Mexico). The increase in flat car surplus is in all Groups, except 1 (as above), 8 (Kansas, Colorado, Oklahoma, Missouri and Arkansas), and 9 (as above). The increase in coal car surplus is in Groups 2, 3 (as above), 5 (Kentucky, Tennessee, Mississippi, Alabama, Georgia and Florida), 7 (Montana, Wyoming, Nebraska and the Dakotas), and 8 (as above). The increase in miscellaneous car surplus is in Groups 3 (as above), 4 (the Virginias and Carolinas), 6, 9 (as above), and 10 (Washington, Oregon, Idaho, California, Nevada and Arizona).

The shortage record shows 6,875 cars for July 15th, as compared with 7,036 for June 30th, and 6,467 for July 18, 1912.

Compared with the same date of 1912, there is an increase in the total surplus of 891 cars, made up as follows: 2,718 in box and 1,064 in flat, and a decrease of 2,217 in coal and 674 in miscellaneous car surplus. There is an increase in the



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total shortage of 408 cars, made up as follows: 665 in box and 701 in miscellaneous, and a decrease of 710 in flat and 248 in coal car shortage.

The following chart graphically portrays the record of car surpluses and shortages during the past seven and one-half years.

Railway Mail Pay.

IN another section of this issue we present a full statement of the Committee on Railway Mail Pay, in which the railroads maintain that at the present time they are underpaid by at least $15,000,000 a year. Their complaint is not against the standard of measuring such mail service as is paid for, but that a large amount of service is rendered for which the Nation makes no allowance. This committee was appointed by the railways to present their plea for increased compensation to the Congressional Committee of Inquiry of which former Senator Jonathan E. Bourne, of Oregon, is chairman. Several hearings have been held by the committee. The Post Office Department was represented by Second Assistant Postmaster General Stewart, and the Interstate Commerce Commission by Prof. Max O. Lorenz, Associate Statistician.

The whole question of Railway Mail Pay will be found fully discussed in another section of this issue.

Results in Investigation of New Haven Wreck.

THE several investigations which, as we noted in our last issue, had been begun of the wreck which occurred on the New York, New Haven and Hartford at Stamford, Conn., on June 12th, have been completed and the results announced. Immediately following the wreck the New Haven officials appointed a committee of experts to investigate the accident, to make tests of the equipment, and to report as to the causes which led to the catastrophe.

On June 16 the committee inspected the locomotive and tender of the train and found, it reports, that the air brake piping was arranged "in accordance with modern practice," with the calculated braking power on the wheels slightly higher than recommended by the brake manufacturers. On June 17 the committee made various tests of the equipment while the locomotive was under steam and found it to be "in good average condition." To determine more definitely the performance of the brakes as a whole the train was then taken out for road service, the committee reporting as follows:

"The result of the running tests made by the committee showed conclusively that the brake on the locomotive was in first class condition.

"Based upon our experience in train brake operation and brake tests and the inspection and tests of the brake equipment on the locomotive and cars which made up the second section of train 53 on June 12, 1913, we are unanimous in the conclusion that the brakes on the locomotive and cars in question were in good, serviceable condition at the time of the accident and in every way capable of stopping the train short of the home signal at Stamford from a speed approximating those from which the stops were made with the train in the road tests on June 17, 1913." The railroad's statement adds:

"It will be recalled that on the six of the seven tests made on June 17 the speed varied from 55 to 64.5 miles per hour, according to the statement given out by the committee of experts after the tests."

After a sensational and protracted inquest, the Coroner of Bridgeport, Conn., exonerated the engineer, Doherty, who was driving the wrecked train. On the matter of the engineer's fitness the Coroner says that "Doherty's alleged incompetence is disproved by his almost perfect service record," and by testimony given by employes and officials of the company. In the matter of practical experience, the Coroner believes that the "one year rule" for engineers does not give sufficient experience, and thinks the limit should be increased to two years at least, "but preferably to three years."

While the distant and home signals, he finds, are too close together at Stamford and should, in the interests of safety, be increased to at least 2,500 feet, he does not think criminal negligence should be attributed to the company or its signal engineer in connection with their location, because of the fact that Stamford is a pre-determined stop and in view of Doherty's "knowledge and obligation to stop," and his "presumed knowledge of the place to start braking." The practice, however, the Coroner says, "of allowing one high-speed train to follow another into what is practically the same block and to come within a few feet of another on the same track is a foolhardy one," and a hazard "not to be justified by the slight gain in time over that lost by one train remaining in the block behind until the train ahead has cleared from its block."

This practice, the Coroner finds, also does "rude violence" to the public belief that, to insure safety, trains while running are kept one block apart.

The Coroner also holds that the company in view of agreement with the engineers' union "exercised all required care" in permitting Doherty to run the express.

In concluding, the Coroner says while there can be no question as to Doherty's competency, he is persuaded by the engineer's "presumed nervousness," due partly to his limited experience, and by other evidence, that he did not apply his "air" early enough, but too near the home signal. "It is within the range of possibility, I assume," he continues, "that something beyond human vision may have been wrong with the air activities of the engine, and that Doherty's story of its defects and of the places and points of failure is correct, and he thereby stands justified."

Of greatest importance of the several investigations, because of the effect which it exercises upon the public mind, is that conducted by the Interstate Commerce Commission, under the direction of Commissioner McChord. While naming Engineman Doherty, as responsible for the wreck in which six persons were killed and twenty-two injured, the report strongly condemns the New Haven System of management, by which a "green engineman" was given charge of a fast high class train.

The Commission goes further than mere condemnation of the New Haven's management. It serves significant notice that unless there is more economical and safe management there may be recommendations for Congressional action. The paragraph in which this threat was contained was

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the concluding one in Commissioner McChord's report, and was as follows:

"Establishment of safer and more efficient operation of this railroad is immediately necessary if Congressional legislation extending the scope of the governmental regulation of railroads is not to be called for and justified in the interest of public safety."

After summing up exhaustively the evidence developed at the joint hearings with the Connecticut Public Service Commission, including the railroad officials' defense, Commissioner McChord says:

"No organization but that of the New York, New Haven and Hartford Railroad Company is responsible for placing a man in charge of this locomotive without tests or supervision by traveling engineers of his qualifications and judgment for this special work. The determination of the ability, fitness or qualifications of an engineman is the duty of the railroad itself. It was not delegated to any other organization, nor could it be so delegated.

"It was neither delegated nor performed. It was neglected. It was unwarrantably assumed that a man at the head of the list of spare enginemen was qualified. Something is 'out of gear' on a railroad where high class trains may be given over to an uninstructed engineman. And this is true even if he is sent out on a run with the caution of his superior, 'Don't let it get away from you.' Here was doubt from the man who ought to know.

"The responsibility for having a competent man with positive qualifications at a post of duty is a corporate responsibility. The fault for placing an untested man in a position fraught with danger to life is the fault of the company and its officials. 'Man failure' can only excuse the railroad and its officials where the man has been properly tested and found to possess the positive qualifications required.

"The absence of all competency tests of this engineman is a matter for which the management is solely responsible.

"His good judgment in bringing an express passenger train to a stop ought not to have been tried out at the risk of passengers' lives."

The general conclusions of Commissioner McChord include following important points:

"Establishment of safer and more efficient operation of this railroad is immediately necessary, if Congressional legislation extending the scope of governmental regulation of railroads is not to be called for and justified in the interests of public safety."

The report declares the whole evidence justifies the following conclusions:

"The engineman of second No. 53 (the wrecked train—Engineer Doherty) did not have the special experience and instruction required for the operation of such a train.

"The New York, New Haven and Hartford Railroad Company had no reliable method for determining the capacity of enginemen before placing them in charge of high speed passenger trains.

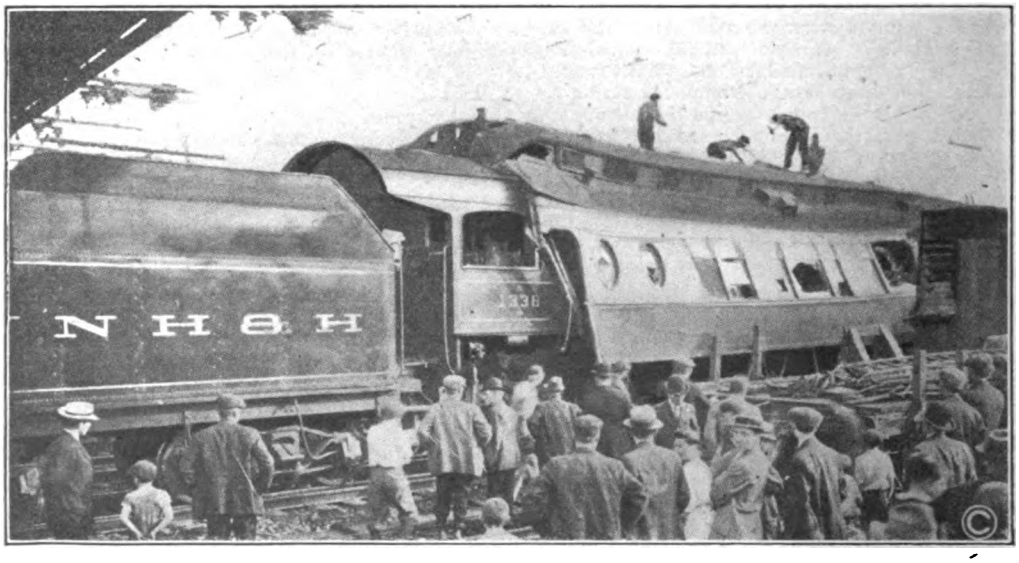
"There was negligence on the part of the corporation in putting in charge of such a train as second No. 53 an engineman inexperienced and uninstructed in this class of work.

"This railroad has no proper system of checking work reports, so as to determine whether or not defects reported on locomotives are actually repaired. This lack of supervision is dangerous and it ought not to be permitted to continue.

"The distance signal at Stamford is too near the home signal, and should be at least 2,500 feet distant therefrom.

"Modern steel equipment for high speed passenger trains should be installed at the earliest possible time, as recommended in previous reports of this Commission, and legislation fixing such a time should be enacted without delay."

Supplementing the findings of the Federal Commission, the Connecticut Public Utilities Commission submitted a report, the conclusions in which were strikingly similar. The Commission finds that from the testimony of experts and the results of the experimental tests with Doher-



GENERAL APPEARANCE OF THE WRECK ON THE NEW HAVEN AT STAMFORD, CONN., ON JULY 12TH.

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ty's engine and train that the brakes were in good serviceable condition. It also finds that the distance and home signals are too near together at Stamford, and recommends that the distance between them be increased to at least 2,500 feet. It is now, 1,800.

Regarding engineers' qualifications it is recommended that it is neither "prudent nor safe" to allow an engineer of less than one year's road experience to run local passenger trains and that through express trains should be handled by engineers having at least two years' experience in road service. It is further recommended that frequent examinations of engineers be made to determine their fitness and knowledge of requirements. Referring to agreements between the engineers and the company the report says:

"The individual responsibility of a locomotive engineer especially on fast passenger trains is very great, and the primary and ultimate responsibility of the company for the safe operation of trains is necessarily great and imperative, and no arbitrary rule or agreement should be entered into which would lessen the degree of high efficiency necessary to meet these important responsibilities."

In reply to the conclusions of the Federal and State commissions, the New York, New Haven and Hartford Railroad Company issued a formal statement, the most important portions of which follow:

"The Interstate Commerce Commission's report on the Stamford accident, in which the New York, New Haven and Hartford Railroad Company is held negligent in putting in charge of such a train as second No. 53 an engineman inexperienced and uninstructed for that class of work, fails to state that the employment of this engineer was practically forced upon the New Haven Railroad by the engineers of the company.

"On May 14, 1910, an agreement between the engineers and the company was entered into providing that spare engineers shall be run first in and out so far as it is possible with the requirements of the service, and, when engineers are assigned to temporary vacancies, they shall remain on same provided they are competent until the regular engineer returns. They shall receive rates of the regular engineers while on the road.' This rule is practically the same as had been in effect before any agreement was entered into.

"In the fall of 1912 an order was issued to the effect that spare engineers who had less than two years' experience, or two years' rating as engineers, would not be allowed to run through passenger trains. This order was protested by the engineers on the ground that the company had not adhered to the rule of giving the engineers thirty days' notice before amending existing rules. The company then issued the thirty days' notice, and when this time was up, C. L. Bardo was general manager, having been appointed in the interim between the posting of the notice and its expiration.

"Mr. Doherty, the engineer on second 53 the day of the accident, had an excellent record. The company had no way of telling that he was incompetent; in fact, Mr. Bardo testified before the Interstate Commerce Commission that he still believes 'in all general matters as to his competency, that Doherty was a competent man.'

"The Interstate Commerce Commission reports the company negligent for employing Doherty on this run, but passes over the part played by the engineers in this matter."

The tangible results of the investigations and public agitation must after all be the positive steps which are taken by the company to prevent the recurrence of such a catastrophe, in so far as that is possible. The good faith and entire willingness of the company to meet every reasonable requirement is shown by the action of General Manager Bardo in promulgating the following order in respect to the assignment of engineers to passenger trains:

"Engineers must not be permitted to operate passenger trains except under the following conditions:

"First: They must have two years' previous road experience for through trains and one year's previous road experience for local trains.

"Second: They must have a certificate showing that they have passed all of the required examinations, a watch certificate, and a certificate of competency based upon the personal observation and knowledge of the road foreman of engines and master mechanic and approved by the division superintendent. A copy of this certificate must be given to the engineer and a copy filed in the division records.

"Third: No man shall be assigned to passenger trains wtihout the prescribed service qualifications or certificate of competency, unless he is accompanied by a road foreman of engines or other competent employe, who will remain with, and be responsible for him until his competency is established.

"Fourth: No man will be promoted to the position or employed as an engineer, or take rating as such, until he is furnished with the prescribed certificate of competency from the road foreman of engines and master mechanic and approved by the division superintendent; a copy of this certificate to be filed in the division records."

The Railways' Purchase of Cross Ties.

THE Census Bureau of the Department of Commerce, has just issued a bulletin in which it reports the number and kind of cross ties purchased by the railways of the United States during 1911. This number, including the purchases of both the steam and electric lines, amounting to 135,053,000 and represented a decrease of 13,178,000 as compared with the number purchased in 1910, but is over 11,000,000 in excess of the number reported for 1909. A significant feature of the 1911 purchases is that only 11,000,000 were for new track—the lowest percentage since 1908. The number purchased in 1910 for the same purpose, was approximately 22,000,000.

Ten kinds of wood supplied 95 per cent of all ties purchased. These are the oaks, the hard southern pines, Douglas fir, cedar, chestnut, cypress, tamarack, hemlock, western pine and red wood. The various kinds of oak are drawn upon, as a class, far more than any other kind of wood, 44 per cent of all ties purchased in 1911 being oak.

As to the woods which serve the various localities, Douglas fir, cedar, western pine and red wood meet the greater part of the demand in the far Western States; chestnut is used exclusively in the North Atlantic States, while oak, cedar, tamarack, hemlock, mixed hard woods and southern pine meet the requirements of the

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Northern States east of the Missouri River. In this region the railroads have been forced to draw upon many species and a wide area to meet their increasing cross tie requirements. As for the Southern States, pine, cypress, oak and gum, fill the wants of the railroads of that locality.

The bulletin contains no report regarding the average cost of ties during 1911, other than stating that this cost has not varied greatly from that reported in 1909, which was 49 cents for all kinds of woods, ranging from 33 cents for hemlock to 53 cents for red wood, and for western pine. There have, of course, been marked fluctuations of these general prices in many of the producing localities.

In the division of purchases between the steam railroads and the electric lines, the former is credited with 126,155,000 ties and the latter with 8,898,000. This indicates the steam railroads purchased 93 per cent of the total number in 1911 which is somewhat smaller than the proportion reported in 1910. The trend of purchases from year to year, shows for the electric railroads a regular though slow increase reflecting the steady development of these lines, while the purchases by the steam railroads have fluctuated considerably according to industrial conditions.

The subject of tie preservation is dealt with in the bulletin, which states that of 112 treating plants of all classes in 1912, nearly 90 per cent were well equipped and operated in representative sections of the country from coast to coast although chiefly in the Eastern States. Many of these plants treat piling, poles, construction timbers, paving blocks, etc., besides cross ties, but aside from the general plants, the steam roads operated twenty-two plants to meet their own needs, chiefly in the treatment of cross ties. The growth of this industry is indicated by the statement that in 1911, 31,141,000 cross ties were treated, either before or after purchase, 30,544,000 in 1910; 22,033,000 in 1909; 23,776,000 in 1908, and 19,886,000 in 1907.

Over half of the preserved ties in 1911 were treated with creosote oil, while nearly 28 per cent received a solution of zinc chloride, and the remainder with a combination of these preservatives, crude oil, or various other materials. The report shows that southern pine, oak and gum are generally creosoted, although a large number of ties made from these woods are treated with zinc chloride. Nearly all of the Douglas fir ties were treated with zinc chloride.

Proposed Box Car Pool.

A POOLING system for railroad box cars, designed to protect the owners of the cars and prevent disastrous car shortages such as have recently been experienced, is proposed for immediate acceptance by the car service bureau of the American Railway Association, and will, in all probability, be adopted by the members of that organization.

The pool is to be organized by all the carriers and to be governed by regulations which will bring about the best and most prompt service possible to all the roads. The box car is the legal tender of railway equipment, and under the present system, as railroads frankly admit, the weaker roads graft on the stronger for cars. The per diem charge for car rental is a comparative pittance to the owning line in a brisk season, when these cars are worth not less than $5 a day.

Under the pooling system proposed by the car service commission, box cars will be owned in common by the carriers in addition, the arrangement will make for the standardization of equipment. It is understood the American Railway Association will ask the Master Car Builders' Association, which recently held its annual convention in Atlantic City, to furnish the necessary designs for uniform box cars and make such suggestions as may prove of value.

Government to Test Railroad Scales.

ANNOUNCEMENT is made that the Bureau of Standards of the Federal Government has contracted for a special car to be delivered in the near future which is to be used to test the accuracy of scales used by railroads. The car is to be fitted with a power crane and will carry a number of ten thousand-pound weights. By running the car alongside of a set of scales, any number of weights may be placed thereon or the car itself can be weighed empty and after the successive addition of each weight to its load. It will thus be possible to effect a varied test of each scale.

Maryland and Pennsylvania Experimenting with Automatic Train Stop.

IT has become known that the Maryland & Pennsylvania R. R. has for some time been experimenting with an automatic train stop device in its Baltimore yards and for two miles north over its line. According to the statement of G. E. Norris, the road's superintendent, the device has given such good service that the company plans to extend its use from Baltimore to Bel Air. Over those twenty-seven miles of the company's line, the train service is heaviest.

"The device," writes Superintendent Norris, "is designed to accomplish four objects, as follows:

"1.—To prevent two trains from entering the same block at the same time.

"2.—To prevent running through open switches.

"3.—To prevent, accidents due to cars standing beyond clearance point on sidings, and

"4.—To prevent accidents due to broken rails."

The device is known as the Jones Safety Train Control System. For its operation, there is provided at such points on the line where signals are ordinarily needed, a strip of steel rail about fourteen feet long, called the "contact rail." It is set, for its brief length, quite as the third-rail of an electric power road is located at the side of the running rails. Connection with the locomotive is also established in much the same way as the current is carried from a third-rail to the motor of an electric engine, to wit, by an overhanging shoe. In the train control system, this shoe is carried on the forward truck of the locomotive's coal-tender. When not crossing a signal station, this shoe is free from all contact, but when the train reaches a signal, the shoe runs over the contact rail, and the signal circuit is completed.

The method of carrying the current to the engine cab is known as the intermittent circuit, the complete circuit being made through the regular running rails, but rendered effective only at the contact rails. Given any one of the four causes of danger, listed by Superintendent Norris, the current is carried to the contact rail,

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passes through the shoe to the engine cab, and there takes effect in some one of two or three ways. First, if the train be only at the "distant signal," the speed control system merely lights a red electric lamp in the cab and shows a caution signal, warning the engineer of trouble in the second block ahead. But if the train be already at the "home signal" and is still exceeding a predetermined rate of speed, the control system sends a current from the contact rail into the engine cab which immediately operates a safety-valve, cuts off the engine's steam, and throws on the brakes. An automatic stop is effected.

According to the superintendent, "the device has given no maintenance trouble, and after eight months' operation on our road under regular operating conditions and on the most difficult part of our road, I am thoroughly satisfied that the cabin signal and train stop of our automatic train control system is not only practicable, but has proved its ability to prevent the loss of life and property."

Burlington Increases Transcontinental Pullman Service.

INCREASED Pacific Coast travel has brought about the inauguration by the Burlington of a new daily line of Pullman standard sleeping cars from Chicago to San Francisco, via Denver & Rio Grande and Western Pacific, commencing July 11th. The schedule provides a daylight service through the scenic portions of the Rockies and the Sierra Nevada mountains.

Railroads Experimenting with Lignite.

AN experimental station in charge of a department of the University of North Dakota at Grand Forks, has worked out a process which makes it possible for railway engines to burn lignite coal. This development means that western railroads will use western coal and this makes a market for the immense deposits of coal in North Dakota.

The Chicago and Northwestern and Burlington railways are now making practical tests upon forty locomotives in actual service, and if practice proves up with laboratory tests, then the railways will be able to make great saving in their fuel accounts.

Railroad coal in the western portions of these States and in western Nebraska, Wyoming, Colorado ranges from $5 to $6 a ton, while lignite can be bought, at this time, at $1.75 a ton.

The experiments are of great value not only to the railroads operating in the west, but also to the States of North and South Dakota.

Changes in Refrigerator Service on Rio Grande.

CARS of the American Refrigerator Transit Company will at once replace the cars of the Armour Refrigerator Company in the handling of produce and fruit on the Denver & Rio Grande railroad.

This move explains the addition by the American line of 2,500 refrigerator cars recently ordered from the American Car & Foundry Company. This new equipment gives the American Company 8,500 refrigerator cars. It is said that no friction exists between the American and the Armour companies, but that the latter terminated the contract with the Denver & Rio Grande in order to handle more easily the increasing fruit and produce business of Florida, Texas and Arkansas.

Boston and Maine Abandons Through New York Service.

A STATEMENT is issued by the Boston & Maine Railroad to the effect that it cannot start its through New York service as scheduled because it has not secured the Railroad Commission's approval of the lease of the Hampden Railroad. The statement says:

"The Boston & Maine Railroad has been obliged to give up the operation of the Hampden Railroad and the institution of through service between New York and Boston by that route, because of inability to secure approval of its lease of the Hampden Railroad by the Railroad Commissioners of Massachusetts.

"It is absolutely necessary that this lease should be approved before the Boston & Maine can legally operate the road, and this delay has rendered it practically impossible for the Boston & Maine to get the benefit of the through service it was expecting, for the present summer season."

Pennsylvania's Accident Record for 1912.

OUT of 61,443 men employed in train service on the Pennsylvania Railroad, 119 were killed in 1912. Of this number but seventeen were killed in accidents to trains, freight and passenger. The records show that but an infinitesimal proportion of accidents to employes occur on passenger trains.

There were some 68,000 men employed in shops and on the tracks in 1912. Of this number 166 were killed as a result of accidents, none of which was a train wreck.

While 285 train, track and shop employes of the Pennsylvania Railroad were killed in 1912, but seventeen, or about six per cent, of them were killed in accidents to trains. The other deaths were due to trespassing, to carelessness and, in some instances, to defects of shop machinery and other avoidable causes.

New Haven's Accident Record.

IN a statement in the Springfield Republican headed "There is no greater thing in travel than a high average of safety," the New Haven management calls attention to the fact that in the ten years from June 30, 1903, to June 15, 1913, under President Charles S. Mellen, the New Haven operated 5,078,750 trains. These trains covered 158,531,541 miles, practically 6,341 times the circuit of the globe. They carried 755,678,338 passengers paying fare.

In the ten years there were just six accidents to trains in which persons traveling in them were killed. The number of passengers who lost their lives as result of such accidents was just 29. In six of the ten years not a single passenger was killed in any accident, although 441,426,000 passengers were carried over a total mileage of 93,593,311. In the five accidents preceding 1913 no coroners' verdict or investigation by state or national authorities found any defect in the construction of road bed, condition of motive power

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or equipment or in condition or operation of signals.

The territory covered by the New Haven is such that its passenger traffic is the densest of any large railroad in the country. The statement concludes: "It is because of this record for safety and because of the superior road bed and equipment that the public is shocked over every accident, of every character, from any cause, that takes place upon this road."

Change in Names of Pullman Cars.

USE of mythological and historical names in designating sleeping and private cars is being discontinued. Statistics compiled by the Pullman Company and made public show that names of cities, states and towns are being substituted, especially by western railroads. One Pacific Coast line already has discarded Indian names, pronounced with difficulty, for names of several cities in California and Colorado.

Lackawanna Displaces Ink with Indelible Pencil.

THE Lackawanna Railroad Company has issued a general order for all operators to discontinue the use of ink in making reports of messages, and to use the indelible pencil. The order went into effect on June 25th.

Several reasons are attributed for the change. The most important, according to the railroad officials, is that shipping ink is a nuisance. Bottles are broken in transit and often cause damage.

The indelible pencil will make a writing that can be observed as long as ink, if not longer, and will do away with the copying press, because hereafter the man who uses the pencil for the pen will simply slip a carbon sheet under that on which he is writing and at one writing will have a copy on file.

It is expected that the indelible lead pencil will be put in more general use in the future in departments where typewriters are not employed.

Northwestern Urges Greater Efficiency of Station Agents.

STATION agents of the Chicago & Northwestern have been officially urged to establish better records for efficiency. Their special attention has been called to "lost motion," impairing efforts for improvement in handling business.

Department of Commerce Orders Wreck Inquiry.

THE Department of Commerce, through the bureau of standards, has decided to make a Federal investigation into the causes of railroad accidents. Secretary Redfield, on July 1st, instructed the bureau to make a careful study of accidents resulting from broken car wheels and axles and render a report.

Certain data taken from the annual report of the Interstate Commerce Commission for the year ending June 30, 1912, giving the number of derailments due to defective equipment and roadways for the eleven years of 1902-1912, inclusive, brought about the order for an investigation. It appears that the wrecks caused by broken car wheels are substantially four times as many as those caused by broken rails, wrecks from broken axles are one-half greater in number than those from broken rails.

It would appear, therefore, that the total accidents arising from broken wheels and axles taken together are almost six times as numerous as those arising from broken rails, and that the tendency is toward a continuance of this condition, especially as regards wheels.

B. & O's. New Plan for Distributing Coal Cars.

BEGINNING August 1st new regulations for the distribution of coal cars will be enforced by the Baltimore and Ohio Railroad. During extended periods of full car supply mines will be furnished with a full quota of rolling stock, provided the cars are loaded and consigned promptly. Mine ratings will be based upon the month showing the highest average daily shipments of the total output of the operators during the preceding twelve months.

Rio Grande to Adopt Telephone Dispatching.

THE telephone probably will replace the telegraph for dispatching work on the Denver & Rio Grande system, according to an announcement made by Vice-President Brown, of that company.

Construction gangs will start this week installing a special and private telephone system between Grand Junction, Colo., and Ogden, Utah. For this purpose two heavy copper wires will be strung a distance of 328 miles, at an expense of upward of $50,000. It will require between 60 and 90 days to complete the work.

Not only will side tracks and blind sidings be equipped with telephone boxes, but all trains will carry instruments enabling trainmen to make connection at any point between telephone stations. Delays to trains occasioned by unlooked-for interruption of any character will be minimized and the despatching of trains expedited far beyond present possibilities. The heavily worked telegraph wires will also be relieved of much of their present burden.

Lehigh Valley's New Industrial Department Car.

THE Lehigh Valley Railroad has remodeled one of the company's largest dining cars and turned it over to its industrial department to be used as a traveling exhibition and meeting hall to promote and develop the road's industrial opportunities and agricultural territory. The car differs widely in its equipment and arrangement from the ordinary demonstration car such as is used in agricultural work. At times it will be divided into a kitchen, dining room and bedroom, and used to teach and illustrate domestic science. Experts from the New York State College of Agriculture, at Ithaca, have volunteered to carry on this work of teaching food values, proper methods of cooking, and sanitary care of the home with all the necessary apparatus and paraphernalia.

At other times the car will be provided with literature, maps, models, photographs, drawings, blueprints, stereopticons and moving pictures of factory sites and local industries along the lines; and with charts showing shipping points and fa-

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cilities, statistics of production and returns, distribution of population, time element, and answering all the hundred and one other questions which a man seeking a factory is likely to propound.

A third phase of the usefulness of this versatile car will be the agricultural side, the giving of actual demonstrations and experiments in seed tests, the growing of feed, grasses and grains, and the development and use of fertilizers. Here again the show case, the photographs and stereopticon, and lectures of experts will all play their parts. The officials of the State College of Agriculture have consented to equip the car with seed and supplies such as they use in their demonstrations and to send experts along.

At other times the college will take over the car entirely in order to disseminate its own propaganda along the line. In other words, there will be no permanent exhibit, but the car will be busy the year around, sometimes in charge of the agriculturist of the Lehigh Valley and his three assistants in the field, at others turned over to teachers of domestic science, but always in charge of experts in their line.

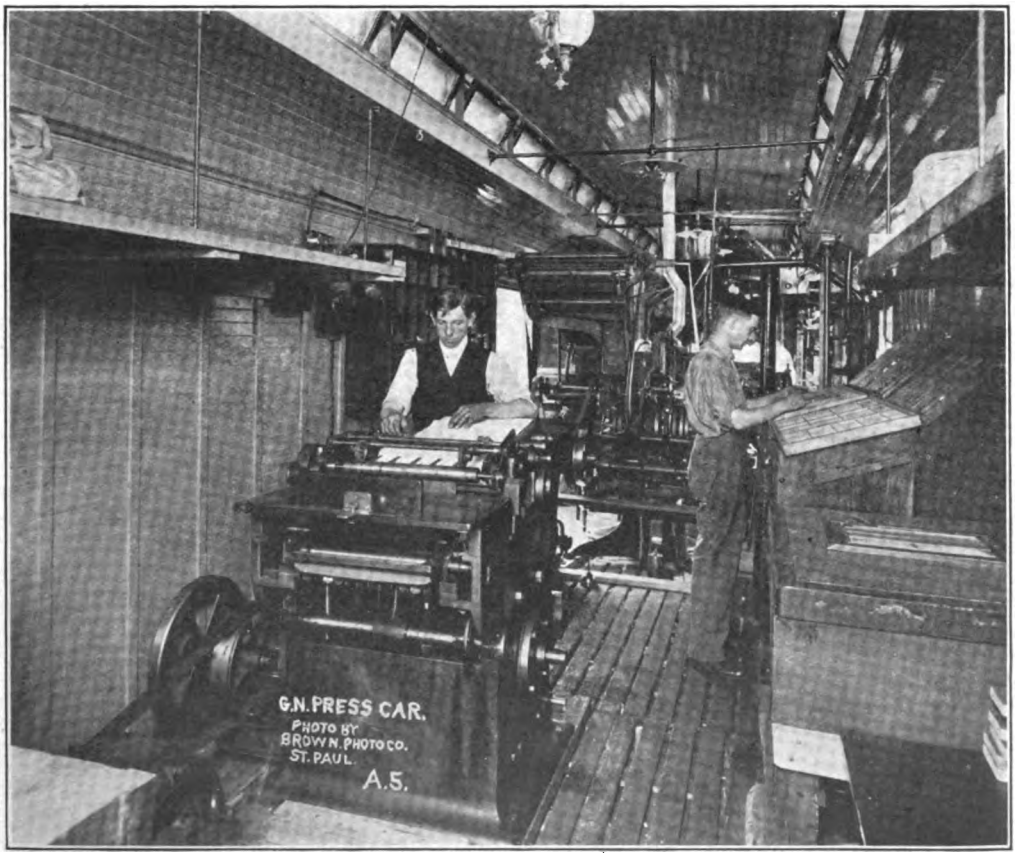
Mechanical

A NEWSPAPER PLANT ON WHEELS.

AN interesting and successful experiment was tried by the Great Northern Railway last month in connection with its hotel train which accompanied the members of the American Automobile Association in their annual Glidden tour from Minneapolis, Minn., to Glacier National Park.

This enterprising railroad, not satisfied with furnishing a train equipment so complete that the tourist never felt the lack of first-class hotel accommodations, added another car with a small but strictly modern and efficient newspaper plant, with the result that during the nine-day trip the *Glacier Park Blazer*, a four-page daily, was successfully printed en route and was replete not only with interesting and current news items, but with numerous illustrations representing either incidents on the way or scenic marvels for which the route is widely celebrated.

The plant, by means of which this newspaper was printed, was installed in a modern sixty-five foot dynamo baggage car and the equipment included a Linotype machine, a cylinder press and engraving outfit, making it possible to perform



This photograph and those on the following page show the interior of the newspaper plant carried in baggage car as part of the train equipment of the hotel train which recently accompanied the American Automobile Association in its regular annual Glidden Tour.

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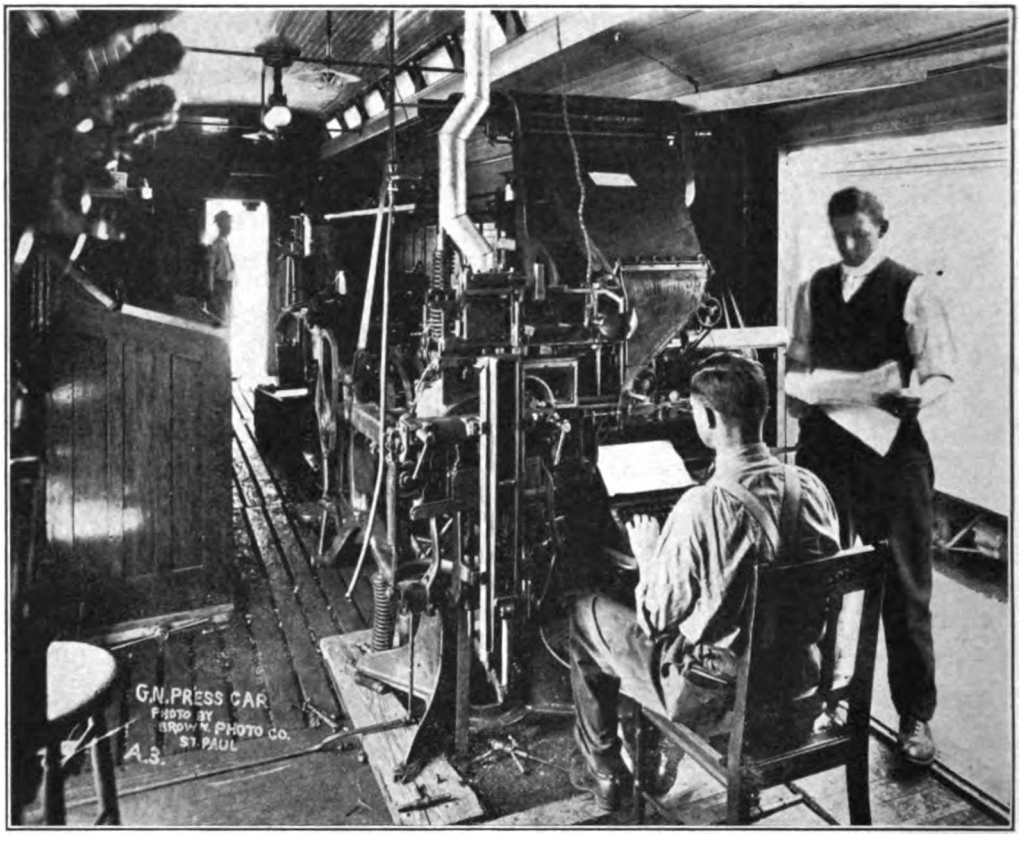

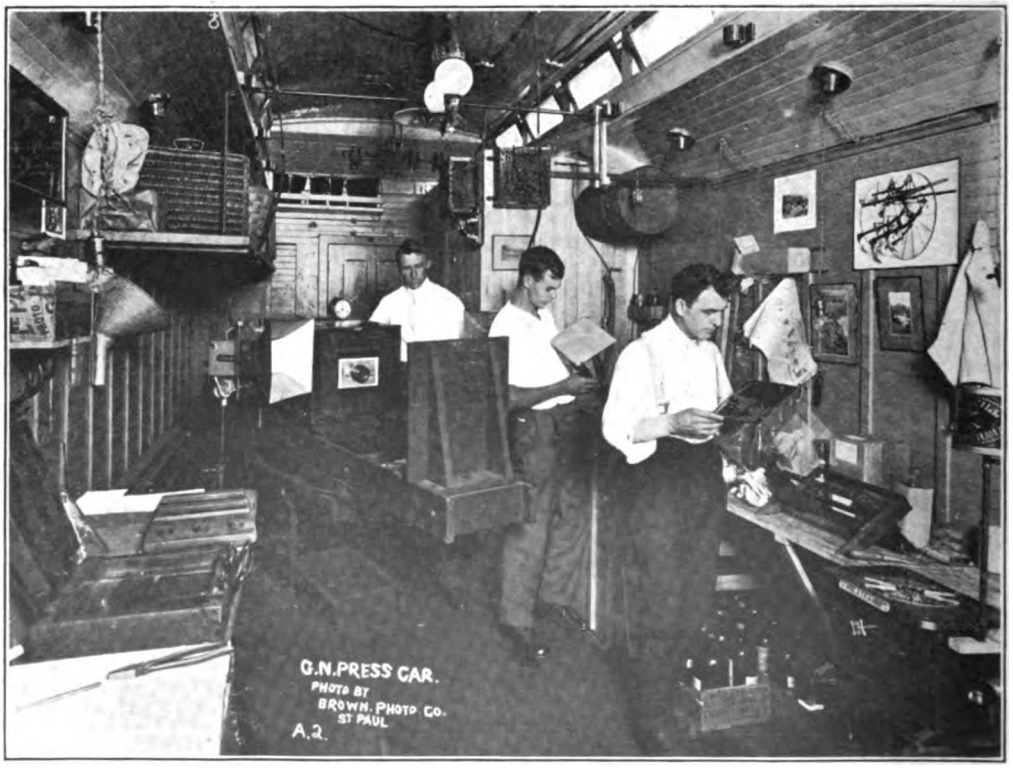

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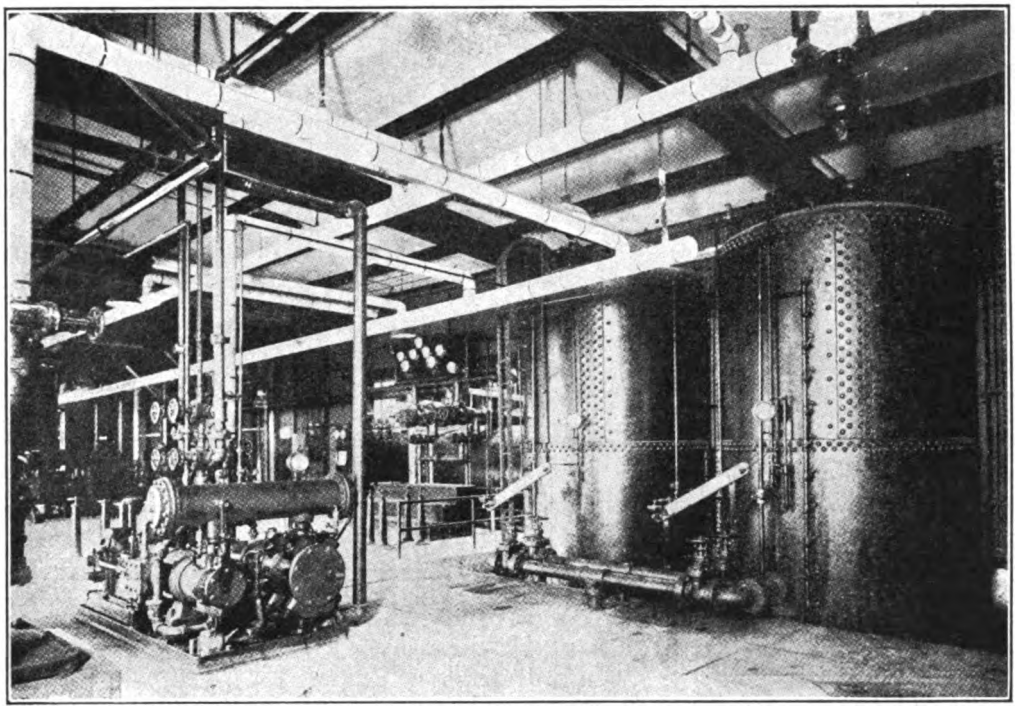
all the work necessary to publish a complete edition. The following illustrations give some idea of the completeness and working efficiency of the plant.

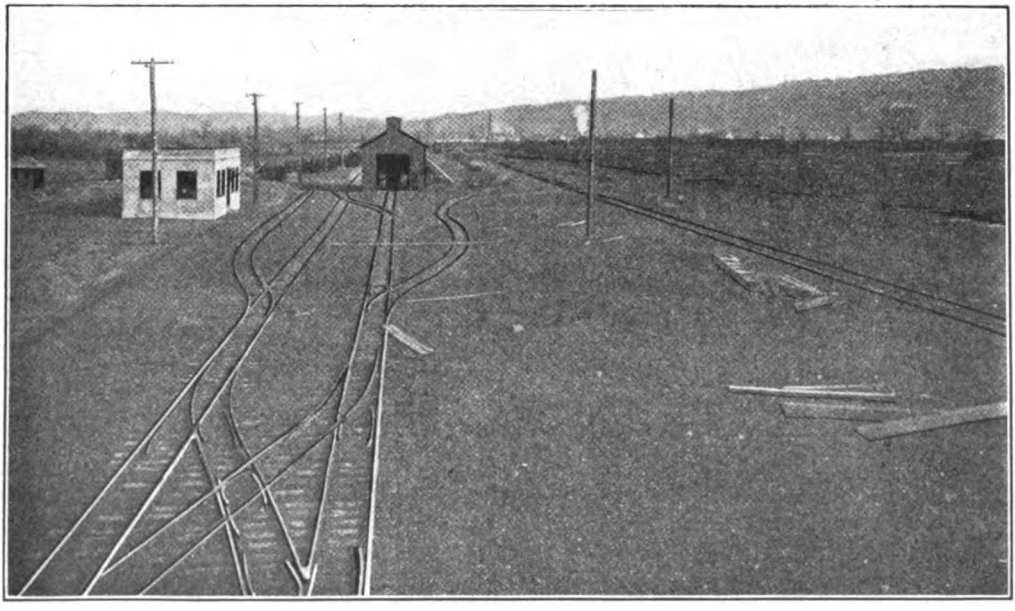
It need hardly be added that this innovation added greatly to the enjoyment of the tour and gave those who participated in it a delightful and intimate record, which will undoubtedly be carefully preserved.

BALTIMORE AND OHIO'S NEW TIE-TREATING PLANT.

THE Baltimore and Ohio has recently completed a new tie and timber preserving plant at Green Spring, W. Va. The general arrangement of the plant is shown in the accompanying illustration. The equipment throughout is the latest type, being designed to secure



INTERIOR OF NEW TIMBER TESTING PLANT OF THE BALTIMORE AND OHIO AT GREEN SPRINGS, W. VA., SHOWING COMBINATION MEASURING TANKS ON THE RIGHT AND RETORT IN THE BACKGROUND.



TRACK LAY-OUT AND TIE YARD OF NEW BALTIMORE AND OHIO TREATING PLANT.

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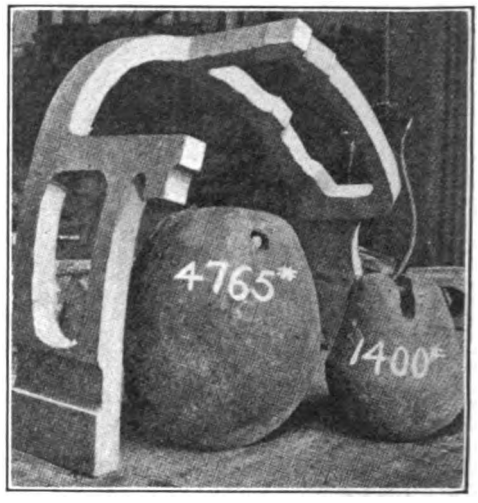
the maximum output with the minimum cost. On the right hand side of the illustration appears the combination pressure drain measuring tank, while on the left, in the foreground, is the Clayton air compressor. The air is pumped into the combination tanks after they have been filled with a preserving solution, until a pressure of 175 pounds is attained. The timber in the retorts absorbs the solution which is fed through a three-inch pipe running from the bottom of the tank.

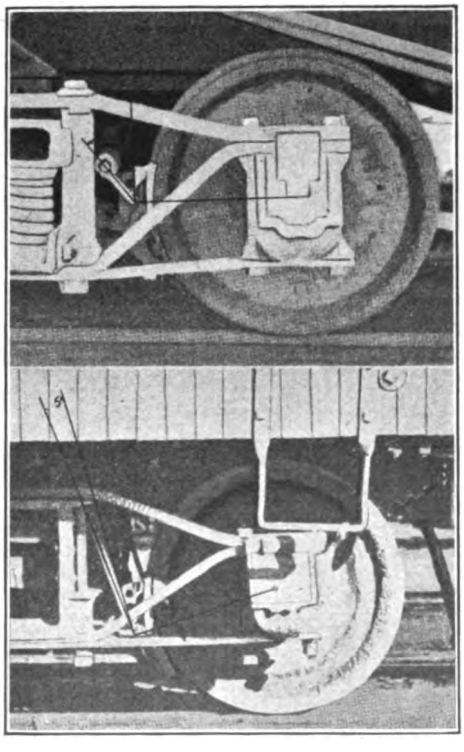
Interesting Test of Locomotive Frame.

THE Union Steel Casting Company has recently completed a most remarkable test of a vanadium steel rear frame for a Pacific type locomotive built for the Southern Railway. We reproduce herewith an illustration showing the locomotive frame bent cold into the form of a semicircle under the drop test without a sign of fracture. In all, 847,072 feet pounds of energy were required to bend the casting. Beneath the bent frame appears the two drop balls used, the one weighing 1,400 pounds and the other 4,765 pounds.



VANADIUM CAST STEEL LOCOMOTIVE FRAME AFTER DROP TEST.

THE CHILLED IRON CAR WHEEL.



VIEW 1.—IMPROPER BRAKE HANGER.

From a 90,000 pound capacity gondola car; weight, 33,700 pounds; length, 30 feet; length of hanger, 5½ inches.

VIEW 2.—PROPER BRAKE HANGER.

From a 60,000 pound capacity box car, weight, 33,700 pounds; length, 40 feet; length of hanger, 15 inches.

MR. A. A. HALE, of the Griffin Wheel Company, read an interesting paper on the chilled iron car wheel before a recent meeting of the New England Railroad Club. From the statistics available he calculated that the average mileage of such a wheel under freight equipment can be conservatively estimated at from 100,000 to 110,000 miles, and he calculated that, assuming that the average carload weighs thirty tons, the cost per thousand ton miles for the upkeep of wheels, amounts to slightly less than one cent. The wheel records of the leading railroads of the United States show that 97 per cent of all freight cars, including 100,000 pound capacity cars, are equipped with chilled iron wheels.

He concluded that, "It is safe to say, therefore, that there are over 20,000,000 chilled iron wheels in service in the United States to-day. If these 20,000,000 wheels were placed on a single track, one against another, they would extend a distance of over 10,000 miles, or more than sufficient to form a solid fence around the United States. If they were revolved one revolution, they would completely encircle the earth one and one third times. If they were piled one on top of another, they would make a column 2,500 miles high. Their first cost is approximately $162,500,000; the value of the old wheels as scrap is $97,500,000, or the net cost to the railroads amounts to approximately $65,000,000.

"There seems to be no limit to the reliable carrying capacity of chilled wheels. We have placed 33-inch 925-pound special chilled wheels under engine tenders of 9,500 gallons capacity, carrying a weight of 27,000 pounds, or a total loaded weight of 216,000 pounds. We have also furnished 33-inch 840-pound special wheels for 120,000-pound capacity ore cars operating in a very mountainous district, and these wheels have given

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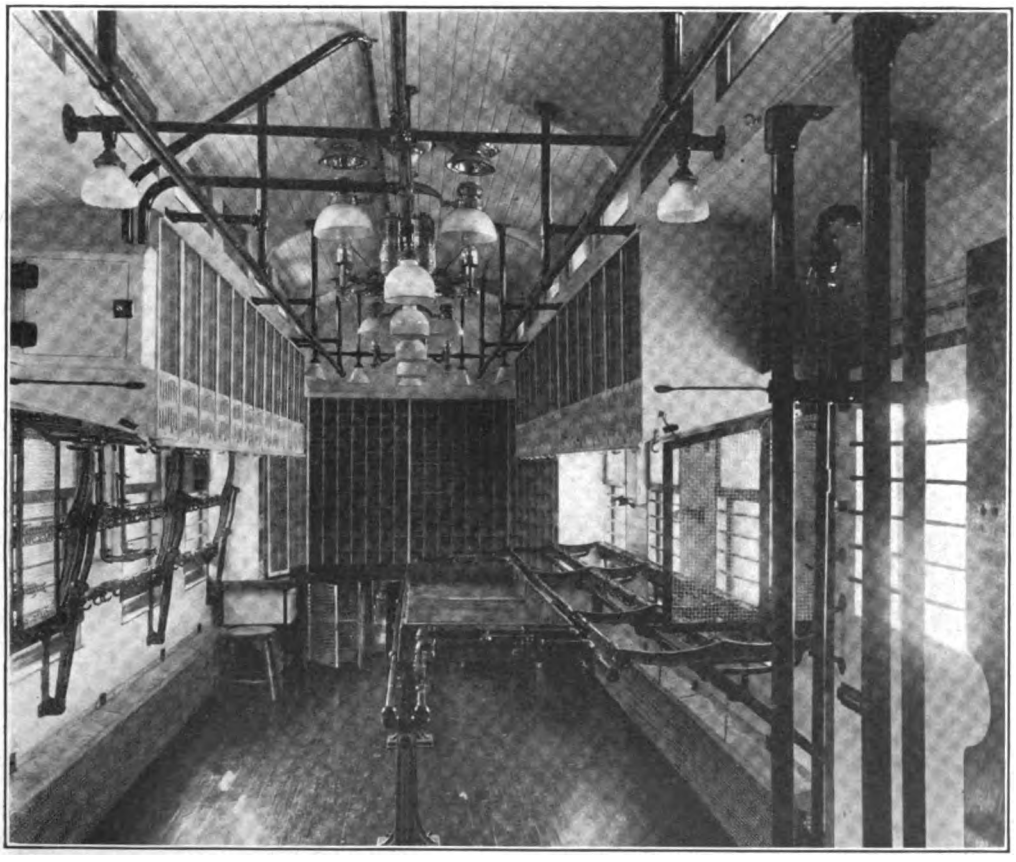
thorough satisfaction. As a matter of fact, chilled iron is the only metal of which wheels are manufactured which will stand up under extremely heavy loads without crushing or flowing. If the design and weights of wheels are left to the manufacturers, they are prepared to furnish wheels for 200,000-pound capacity cars; and, more than that, they will guarantee these wheels."

NOVEL MAIL POUCH RACKS ON THE ATCHISON.

THE accompanying illustration indicates the general appearance of the new mail pouch racks in service on the Atchison, Topeka and Santa Fe Railway. With these racks all the requirements of the Railway Mail Service Department are met and the maximum unobstructed space for storage of mail under the rack, when it is thrown up out of position, is obtained.

A car equipped with these pouch racks may be completely "dressed" before the trip, an essential operating feature as it is unnecessary to remove the mail bags in locking the rack out of position, as the bags hang clear of the floor at all times. The rack is of "unit" construction, having few operating parts and no complicated features.

It is light in weight and very strong, all the castings being of malleable iron. Greater height above the floor at the side wall of the car is provided for heating pipes than usual. The wall rack is rigidly supported and all lateral motion and the consequent wear of operating parts and noise, is prevented by the ingenious method employed of locking the rack section to the wall brackets with rack frame fulcrum eye belts. The rack may be locked down in position and two automatic catchers per rack section are provided for locking the rack up out of position.



INTERIOR OF NEW POSTAL CAR OF THE ATCHISON, TOPEKA AND SANTA FE RAILWAY.

NEW AUTOMATIC SWITCH POINT CLOSER.

MUCH attention has been given by operating officials to the problem of securing a switch point closer or lock which will effectually close the point of rails of switches. The danger of "splitting the switch" by a train running against the point of a switch is widely recognized; it has been responsible for many of the serious accidents of recent years. Mr. J. W. Hubbard, of Eau Claire, Wis., has invented a de-

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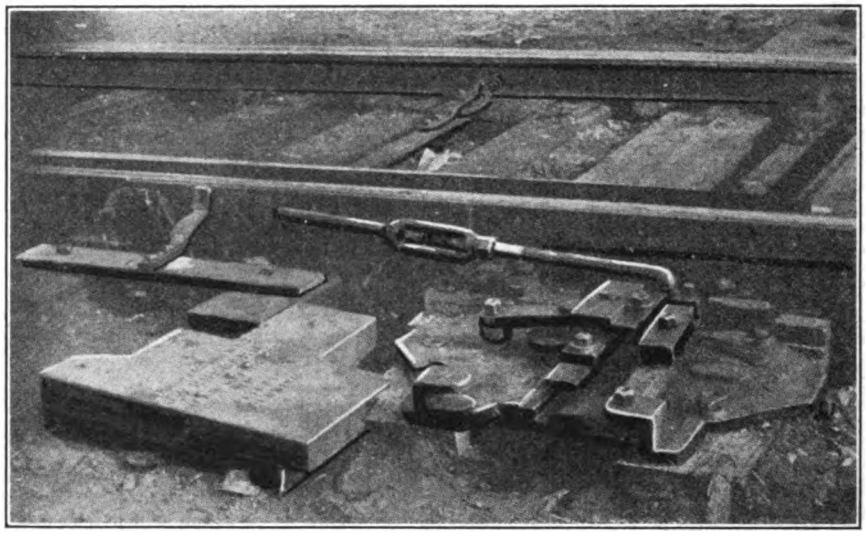
vice which it is claimed will accomplish the desired results. We reproduce herewith an illustration showing a close detailed view of the lock with the iron cover removed, to show the details of the lock as they are assembled on the base plate, which in turn is attached directly to the ties by bolts or spikes. The illustration shows the adjustable connection between the long locking bar and the lock proper, and it will be noticed in this connection that all of the parts of the lock are always in tension when in action. The locking bar is no longer than the maximum distance between car trucks, extending along the rail on the turnout side. It is the contact of the wheels with the locking bar that automatically closes and locks the switch, should it be found not fully set home at the approach of a train. The lock device proper is carried on a heavy steel plate attached to the main headlock and entirely encased with an iron cover.



VIEW OF LOCKING DEVICE OF HUBBARD SWITCH-POINT CLOSER.

THE EMPLOYMENT OF CAR TRUCKS IN BRIDGE REPLACEMENT.

THE accompanying illustration shows the method of using car trucks for bridge replacement north of Joliet, Ill. The RAILWAY WORLD is indebted to G. H. Jennings, assistant chief engineer of the Elgin, Joliet and Eastern Railway Company, for the data and photograph of the work.

It became necessary to renew a through plate girder bridge of the above railway over the tracks of the Chicago and Alton Railway. The old bridge consisted of three 33-feet spans, and was built about twenty-three years ago. The traffic could be interrupted but at short intervals and it was decided to erect the new bridge, consisting of two 30-foot spans and one 40-foot span, at the side of the old bridge, and to make the change by quickly shifting the old structure to one side and simultaneously moving the new girders into its place.

There were temporary tracks laid on the Chicago and Alton right of way, on which were placed twelve ordinary freight car trucks and on these trucks falsework was constructed, supporting the old as well as the new bridge. There were

REPLACEMENT OF JOLIET BRIDGE WITH THE ASSISTANCE OF CAR TRUCKS.

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three pairs of girders in each bridge clamped together with rods and timbers so that the three spans of each bridge would act as a unit.

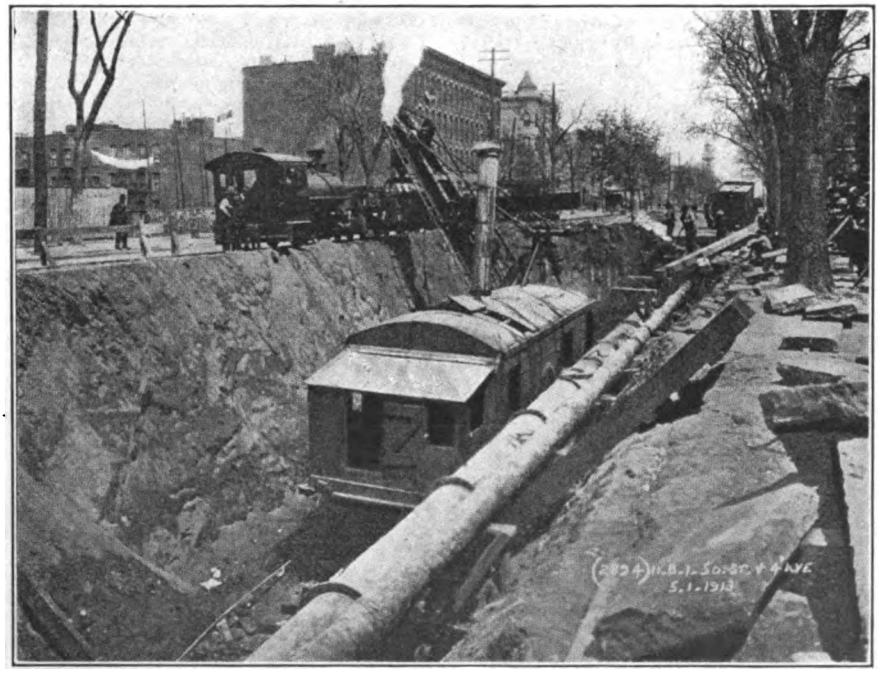
The new bridge weighs about 107 tons. As soon as the time came to make the change which was immediately after the passage of a train, the old girders were jacked up and the pedestals under the steel bents and the ends of the girders were removed.

The blocking was then placed under the old girders, on the falsework, and the jacks were taken out. A line was run from the false work under each end of the bridge, through snatch blocks, to the spools of derrick cars, placed on the Elgin, Joliet and Eastern track, one on either side of the bridge. Both bridges were moved at the same time, and but five minutes were required to take the old bridge out and put the new bridge in. The new bridge was then let down into place with jacks and the time required for connecting up the entire job was less than two hours.

CONSTRUCTION METHODS IN NEW YORK SUBWAY.

THE Public Service Commission of the First District of New York has issued an eighty-page booklet on "New Subways for New York—The Dual System of Rapid Transit," which describes in detail the ambitious proposal for the construction of an extensive system of subways for Greater New York recently adopted and for which contracts have been entered into with the Interborough Company and the Brooklyn Rapid Transit Company. We reproduce herewith illustrations showing the method of construction in the heart of New York's financial district, on the one hand, and in the outlying sections of Brooklyn, on the other. In the first instance, the street surface is covered throughout with a plank flooring, which is shored up and carried with false work as the excavation progresses underneath. The material is removed through hatchways, which are located wherever possible in parks or side streets, so as to avoid obstructing the thoroughfare. In this way street car and vehicle traffic will be kept moving as usual during the construction of the work, and storekeepers will not lose trade (a large number of storekeepers were bankrupted thereby during the con-

SURFACE OF BROADWAY NORTH OF PARK PLACE (NEW YORK), SHOWING CONTRACTOR'S PLATFORM AT CITY HALL—TEMPORARY WOODEN SURFACE ON STREET.



STEAM SHOVEL AT WORK ON FOURTH AVENUE (BROOKLYN) SUBWAY.

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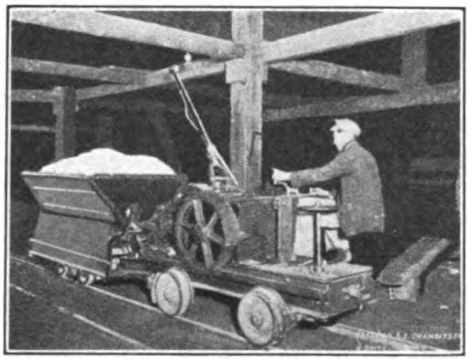

ELECTRIC TROLLEY CARRYING CONSTRUCTION MATERIAL ON BROADWAY, NEW YORK.

struction of the first subway) by reason of having access to their places of business obstructed. The type of electric motor and trailer used in hauling the material under city conditions is also shown in an accompanying cut. Only in the outlying districts where traffic conditions will permit will there be any open cut work allowed, and then only after the engineers of the Public Service Commission have satisfied themselves that such open cuts will not work unreasonable hardships to owners of property.

A Possible Safety Rail.

OUT of a cell in a North Dakota penitentiary, where a lifer has worked for years in the perfection of his invention has come what some railroad officials believe is a real safety rail. The first test by railroads of this safety rail is being made at Gary, Ind., the Soo Railroad having become interested in the invention.

The rail is divided into two parts, one serving as the tread to receive the wheel pressure, the other part being a re-enforcing bar which holds the tread in position and re-enforces it. It is necessary that the tread should be hard in order to withstand the wear of constant use. This necessitates the use of a high carbon steel, which crystallizes very easily in cold weather and also from other causes, and breakages are quite frequent.

The re-enforcing bar is placed back of the rail in such a manner as to sustain it and absorb a portion of the load and shock. This bar, not being exposed to the wear and direct shock and hammering of the wheels, does not have to be hard and can be made of low carbon steel of great tensile strength and toughness. The two parts are bolted together and spiked to the ties and if, from any cause, the tread portion should snap or break, it would still be held in place by the re-enforcing bar, which will not break, because it is made of low carbon steel and will not crystallize. By this combination of hard and soft material, it is claimed that perfect safety is attained, also greater strength and durability.

Canadian Official Invents Train Stop.

A. E. HUDSON, inspector of the Dominion Railway Commission, has invented an automatic train stop. It is a device placed beside the rail which comes into contact with an appliance on the side of the locomotive, automatically setting the brake and closing the engine throttle, preventing enginemen running past a signal set to danger, or into an open switch. Tests have been made which are declared to be satisfactory.

New Haven Installing Superheaters.

THE New Haven Railroad will equip all its 350 locomotives with the superheater device, overhauling them at the rate of five a month at a total cost of approximately $1,000,000. The fifty new "Pacific" type locomotives recently received by the New Haven are all superheaters. The work of overhauling will be done in shops at Readville, Mass.

The outlay of $1,000,000 required by this work is justified by the fact that the hauling capacity of the locomotives will be increased about twenty per cent while at the same time there will be affected a saving of twenty per cent in coal and twenty-five per cent in water.

Pennsylvania Installs Heat-Treating Plant.

THE Juniata shops of the Pennsylvania at Altoona, have been provided with a modern heat treating plant for the purpose of bettering steel used in the work of the company, and getting better results in the way of resistance to strain and wear.

Pennsylvania Introducing Mechanical Stokers.

ON the Pennsylvania Lines West, 140 locomotives are being equipped with mechanical understokers, a smoke reducing device, which will make a total of 294 provided with this means of meeting complaints about smoke.

Electrical

Electrical Transmission for the Panama Canal.

AS the Panama Canal nears completion, interest increases in the character of the electrical installation and the methods to be employed in distributing the energy for Canal requirements. It is not unlikely that these developments will contain helpful lessons for those who are giving their attention to the problems of steam railway electrification.

It is now reported that construction work has begun upon the permanent electrical transmission line across the Isthmus. A few foundations for the track-span bridges have been placed at New Culebra siding, on the Gold Hill relocation of the Panama Railroad, and first shipments of steel for the bridges have arrived from the

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United States. A shed is being constructed in the abandoned borrow pit just east of Gatun Locks, for the assembling of the bridges.

The transmission line is fundamentally to transmit electrical energy from a source of generation at Gatun to load centers at Miraflores, Balboa, and Cristobal. The system is simple and straightforward. At the Gatun spillway, a portion of the lake water will be passed through turbines to generate electrical energy, as described in *The Canal Record* of July 3, 1912. The energy, generated at 2,200 volts, 25 cycles, three-phase, will be carried along the east wing of Gatun dam by heavy cables in duplicate underground duct-lines, and through tunnels under the locks, into a transformer substation, situated on the east side of the locks. The duct-lines are in duplicate, to insure maximum safeguard against damage in event of a burn-out of a cable in one or the other of the lines, and are to be laid approximately 600 feet apart.

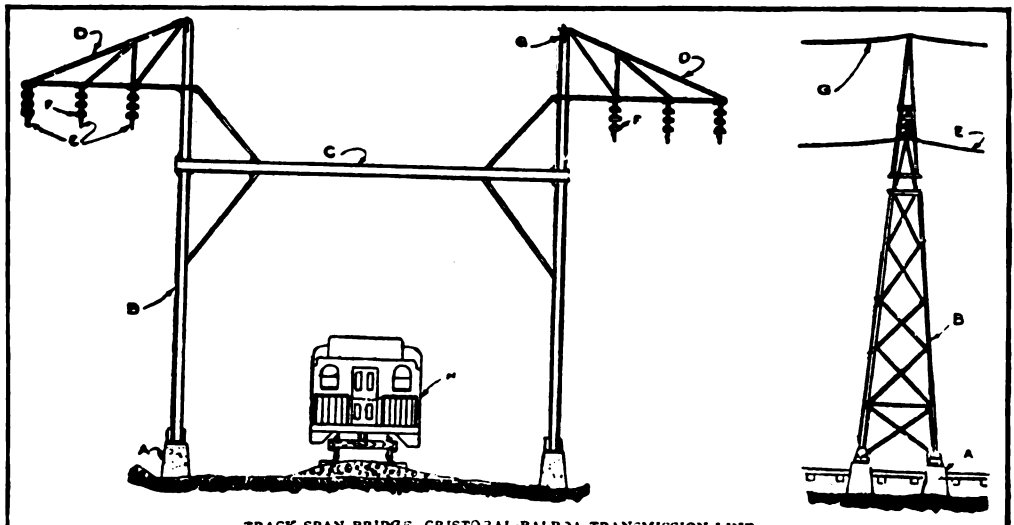
At the Gatun substation, which is to be situated at the north end of the hill upon which the present Atlantic Division office building stands, the electrical energy will be transformed from 2,200 volts to 44,000 volts by means of step-up transformers. The equipment, in addition to three 2,000-kilowatt transformers, will consist of the necessary lighting arresters, oil switches, fuses, control board, and other auxiliary appurtenances. Two high-tension lines will emerge from the substation and tap into duplicate transmission lines.

The transmission line will run from Cristobal to Balboa, completely across the Isthmus, permitting distribution of energy both ways from Gatun. The line is to parallel the right-of-way of the Panama Railroad for its entire length. At Cristobal and Balboa will be terminal substations similar to the Gatun substation. The terminal substations will receive the energy at 44,000 volts, less the voltage drop in the line, and step-down transformers will convert the pressure to 2,200 volts, which will be the distributing voltage for all circuits. At Miraflores, a substation will be installed for supplying energy for the motors and lamps of Pedro Miguel and Miraflores Locks. If electricity is required along the line, the transmission lines will be tapped by outdoor type of transformer substation equipment. This will probably be done at Caimito, to supply electricity to the high power radio station; at Monte Lirio, to supply power to the bascule bridge, and at any permanent town or military reservation which demands electric lights and power.

At Miraflores, the present steam turbogenerators will be tied into the permanent electrical system through 2,200-volt tie-lines extending to the Miraflores substation. The steam station will serve as a reserve in the event the hydroelectric station at Gatun should break down. In emergency, energy from Miraflores will be transmitted back to Gatun and to the terminal substations at Cristobal and Balboa, insuring a continuity of service on her system at all times. The present steam station at Gatun, which has been operated during the construction period, may be abandoned in a year or two if conditions warrant placing entire dependence upon the water power. It will, however, be tied temporarily into the system, until abandonment, and will also be required to supply energy to Gatun Locks until such time as the transmission system is fully installed.

The type of transmission line which has been adopted is illustrated in the accompanying sketch. The track-span bridge supports one of the duplicate three-phase lines upon each side of the railroad tracks. Each of the three power conductors is carried from suspension insulators attached to a side bracket. The conductors are No. 00 in size, and are five feet apart and five feet from the frame. The insulators are made of vitreous porcelain, in three units, which is ample to sustain the impressed potential of 44,000 volts. The insulator fittings are made entirely of monel metal to resist climatic corrosion. A ground wire for protection against lightning is carried at the top of each side frame. The ground wire is 5-16-inch copper-clad solid wire. The copper-clad wire is furnished with a copper sheath of nearly one-half the area of the wire, surrounding an amalgamated, carefully selected steel core.

The steel bridges are spaced on 300 foot centers, a total of 917 being required across the Isth-



TRACK-SPAN BRIDGE, CRISTOBAL-BALBOA TRANSMISSION LINE.

Front and side elevations: A, concrete pedestals; B, side frame; C, cross bridge; D, brackets; E, three-phase transmission line; F, suspension insulators; G, ground wire; H, Panama railroad car.

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mus. The span between side frames is 36 feet. The track-span bridge, in addition to supporting the duplicate transmission lines, admits of the suspension of a catenary trolley construction, should it prove desirable in the future to electrify the Panama Railroad.

The construction adopted has several advantages for transmission purposes. By paralleling the Panama Railroad, material can be brought to within a very few feet of the point of actual erection. The side bracket suspension of the conductors separates the duplicate lines so that a burn-out in one will in no manner affect the other. The conductors are outside the track and will be comparatively free from deterioration caused by smoke from the locomotives. The structure itself is fundamentally strong and is capable of easily resisting all strains introduced by breaks in the wires.

A few details of construction are worthy of note. The No. 00 copper conductors are 7-strand pure copper cables, totaling 1,500,000 feet in length. The individual strands are manufactured without either a soldered or a welded joint. Splices in the cable will be made with soft copper sleeves. The conductors are suspended at the insulators from monel metal fittings, which are bushed with a copper sleeve. Thus, in the entire length of line, there will be no point where the copper strands are in intimate contact with a second metal; this prevents the introduction of an electric couple and consequent electrolytic deterioration.

At each track-span bridge, the ground wire will be clamped to the tower, and a positive T-connection through a copper wire will be made to ground plates buried in the earth. These ground plates are being manufactured from old scrap copper and cable which have accumulated at the Empire storehouse. By frequently grounding the wires, it is expected that line trouble and substation burn-outs caused by lightning will be reduced to a minimum. Five hundred thousand feet of copper-clad wire are required for the two ground wires.

The insulators, which will support the conductors, are of two types, suspension and strain, each assembled of three porcelain discs, ten inches in diameter, joined by monel metal fittings. This metal is used on account of its unusual strength and its ability to resist corrosion; galvanized fittings which are customarily used in the United States and abroad are considered practically worthless in the Isthmian humidity. The strain insulator is to be used on sharp curves and for anchoring at intervals, and the suspension insulator is to be used upon tangents and light curves. The suspension insulator swings freely from the bracket, while the strain insulators take the position of the conductors and hold the conductors more rigidly to a line. Each wire requires two strain insulators per bridge on sharp curves, and one suspension insulator is required for each wire per bridge on tangents and light curves. Four thousand suspension insulators and 2,500 strain insulators, have been ordered for the entire line. The total weight of the copper conductors, including the ground-wires, will be approximately 400 tons.

In the design of the bridge the steel is distributed, so as most efficiently to resist the maximum stresses incurred. The side frames are A-frames, to resist uprooting of the bridge in event all wires are down in one span. The crosspiece is made of two channels, which are crossbraced to carry the longitudinal pull of the catenary construction which may be attached if the railroad is electrified. The side brackets for supporting the line conductors are three-legged, designed both to support the weight and to resist the torsional pull of the wires. The brackets and the crosspiece are braced to the side frames, so that the entire bridge acts as a unit to resist side pull on sharp curves.

The type of concrete foundations for the track-span bridges has been given considerable study. The standard foundation will consist of two pedestals under the two legs of each side frame, the pedestals resting upon a spread slab, which latter is reinforced by scrap steel rails. Each leg of the side frame is to be secured to the pedestal through two 15-inch anchor bolts, which are clamped at the lower end to the steel rails in the spread slab. Provision for anchoring the foundations is made by extending downward long reinforced rods, encased by concrete in a drilled hole, which latter has been sprung at the bottom with light charges of dynamite. This foundation should afford a thorough footing, both for the normal bearing and for anchorage to resist side pull when wires are broken.

New Haven's Electrification Almost Completed.

PRESIDENT C. S. MELLEN will leave the New York, New Haven and Hartford system just a little too soon to witness the completion of one of the most important developments in the history of American transportation, the substitution of electrical power for steam on the line between New York and New Haven.

Another link in the electrification of this division is being pushed to completion as rapidly as possible, and while it cannot be definitely stated when trains will be operated by electricity all the way from New York City to New Haven, this time is not far distant. The link that will complete the electrification to New Haven is the one between that city and Stamford. Part of this is completed; and but a small portion remains to have the finishing touches put on.

While the electrification of the New Haven from New York City to Stamford was in many ways an experiment, the continuation of this work to New Haven has a particular significance, in that it is evidence that the first experiment has proved to be a success of sufficient degree to assure the management of the wisdom of electrifying the whole New Haven system as rapidly as the financial and physical aspects warrant. It is well known that it is the hope of the directors that the line from New York to Boston will before many years be entirely electrified.

The section from Stamford to New Haven is about forty miles in length. This entire section will obtain its power from the present power house at Cos Cob, which in itself illustrates the foresight of the New Haven management. This means that the Cos Cob power house will generate electricity to supply another section which is nearly twice as long as the one from Woodlawn to Stamford. It is estimated by engineers of the company that the Cos Cob power house will be capable of taking care of all normal traffic on the line as far as New Haven, but on days when special traffic is handled, steam will have to be

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resorted to on some trains on the Stamford to New Haven link. When the electrification is continued to New London or Hartford another power house will be erected to relieve the Cos Cob house of some of its heavy burden.

New Canadian Pacific Project.

THE Canadian Pacific Railway will shortly begin the construction of an electric road from Hamilton to Niagara Falls. This road will enable the Canadian Pacific to handle traffic direct from Hamilton to Buffalo on its own right of way instead of operating over lines of the Toronto, Hamilton & Buffalo and the Michigan Central.

Problems of Electric Freight Yards.

ONE of the most difficult problems in connection with railway electrification is the electric operation of switching yards for freight service, comments "Engineering News." Where the third-rail system of operation is employed, it will be conceded, probably, that operation of a freight yard by electric power is out of the question. The work of yard men is dangerous enough at the present time; and if we were to add to present dangers the necessity of keeping clear of a labyrinth of highly charged third rails, extending all over the labyrinth of tracks, it may well be expected that the result in casualties would shortly result in a public outcry and consequent legislation compelling the abandonment of the system.

With the high-tension overhead system of electric distribution, however, such as is now in use on the New York, New Haven & Hartford Railroad from New York to New Haven, it becomes possible to equip a freight yard for electric operation by suspending a network of electric conductors overhead. This has now been done for the New Haven Railway at its Harlem River freight terminal in the northern part of New York City. This terminal covers an area of 200 or 300 acres, and its tracks have a total extent of 86 miles.

Agitation for Electrification in Buffalo.

THE agitation to compel the steam railroads entering Buffalo to electrify their lines has led to the request for an opinion from the corporation council as to the power of the city to compel such action. Section 17 of the charter, he declares, gives that right. This reads:

"The common council shall from time to time enact ordinances:

"7.—To prohibit or regulate the use of locomotive engines and of steam and to regulate other motive power and speed on any portion of any railroad within the city."

Care must be taken, he says, or the amended ordinance may permit the use of locomotives burning oil, as is done in some sections of this country. If that substance were used for fuel it is questionable if the smoke would be abated.

However, the common council does not have the specific power to require that electricity be used.

The way the corporation counsel would get around the difficulty is by enacting the following amendment, making it section 6-A of chapter 5 of the ordinances:

"On and after the first day of January, 1916, it shall be unlawful for any railroad company to operate trains by the use of locomotive engines, propelled by steam power within the limits of the city of Buffalo. Any corporation or company violating the provisions of this section shall be subject to a fine or penalty of not less than $100 nor more than $250 for each and every offense and the employe of such corporation or company in charge of a locomotive operated in violation of the provisions of this act shall be subject to a like fine or penalty."

Future of Electric Development.

ONE of the most important committee reports, read at the recent meeting of the National Electric Light Association, was that upon Public Policy. Upon this committee many of the ablest lighting men of the country served and the report gives evidence of having been carefully considered. Most significant is the picture drawn of the use of electricity in the future. The report says:

"You will see a vast distribution system stretching from one end of the country to the other wherever density of population justifies it. You will see electric energy used for all classes of power where power is required. You will see it produced from a common source. You will see a co-operation that will lead to so low a cost of energy as to place it within reach of all and to make it possible to develop almost any class of industry wherever transportation is provided and wherever it is possible to get the operatives necessary for the manufacture."

Unfortunately the report devoted more serious consideration and more space to the general policy of manufacture and the welfare of operatives than it did to building up closer affiliations with the consuming public. It was advocated, of course, that the electrical industry of any community be concentrated, regulated and saved from competition, but there was little definite suggestion as to how to bring about the rosy prospects quoted above, or to reduce the cost of energy to a point where everyone could use it.

It must be understood that this association is made up of those who manufacture, and distribute for sale, electrical energy. The interest of these people is to make money, but the association should not lose sight of the fact that one of the best ways to make money is to take good care of the customer. It is to protect these consumers that the law has set up regulating commissions; but, it is also up to the electrical people themselves to accord fair play and to accept moderate profits.

Developments Concerning Pennsylvania's Electrification.

ASSURANCES have been made that the work of electrifying the main line of the Pennsylvania Railroad from Broad Street Station to Paoli would be completed and ready for operation by the fall of 1914, as stated some months ago.

The engineering feature of this work is tedious as many details have to be considered, but it is expected that by fall the surveys will have been completed and plans prepared to permit the letting of contracts.

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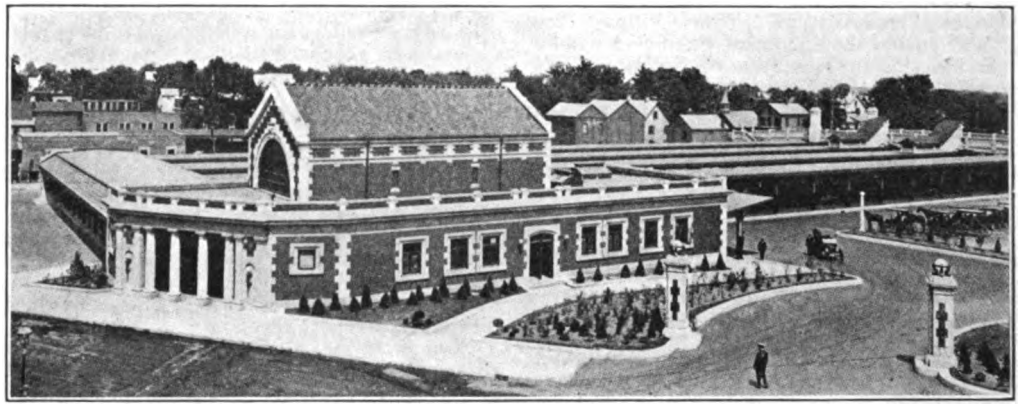
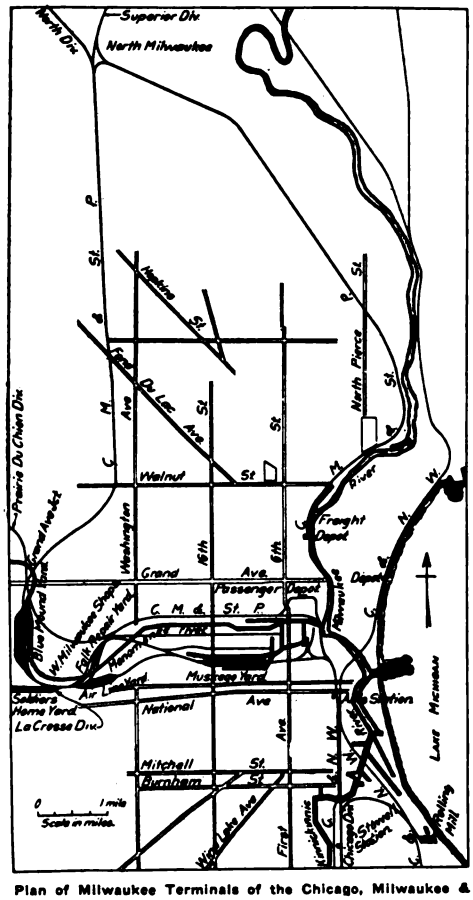
Terminal Improvements

Attractive Type of Suburban Station.

THE Lackawanna has recently completed and put into service a most attractive and well arranged suburban station at Montclair, N. J. The general appearance of the station is shown in the accompanying illustration. The station is built in the Grecian Doric style of architecture, opening through a colonnade into a loggia leading directly to the main waiting room and train concourse. The walls are faced with tapestry brick, trimmed with marble chip concrete.



LACKAWANNA'S NEW PASSENGER STATION AT MONTCLAIR, NEW JERSEY.



Plan of Milwaukee Terminals of the Chicago, Milwaukee & St. Paul.

The roof over the main waiting room is of green glazed tile, while that over the lower portion of the building is of red quarry tile; the latter material is used also for the floor of the loggia.

Particular attention has been paid to the ventilation, which is secured by register faces concealed by the trusses and by ventilated ridge tile directly connected through the roof beams with concealed openings in the purlins along the side walls. Illumination is secured by two large semicircular windows in the ends of the waiting room, while artificial lighting is provided by eight semi-direct hanging side lamps and four lamps placed in other positions.

Four platforms are provided, serving six tracks, each platform being 17 feet wide and 650 feet long, covered with reinforced concrete canopies for about 350 feet. The entrances to the driveways leading to the station are flanked by gate posts built of tapestry brick and surmounted by electric light fixtures of hammered copper. The driveways and all flower beds are curbed with concrete and the driveways are paved with creosoted wood blocks.

St. Paul's Terminal Improvements at Milwaukee.

THE St. Paul System has recently completed extensive terminal improvements at Milwaukee, involving the expenditure of about $750,000. The improvements are designed to relieve the congestion which has prevailed for some time at this point in the handling of freight traffic. In addition to a heavy local business, there is a large interchange business with car ferries and boats operating on the lakes. It is necessary to provide ample storage room in order to accommodate cars which must frequently wait several days. The accompanying illustration shows the general character of the problem and the way in which it was handled.

The first step taken was the building of a new eastbound receiving yard near Grand Avenue

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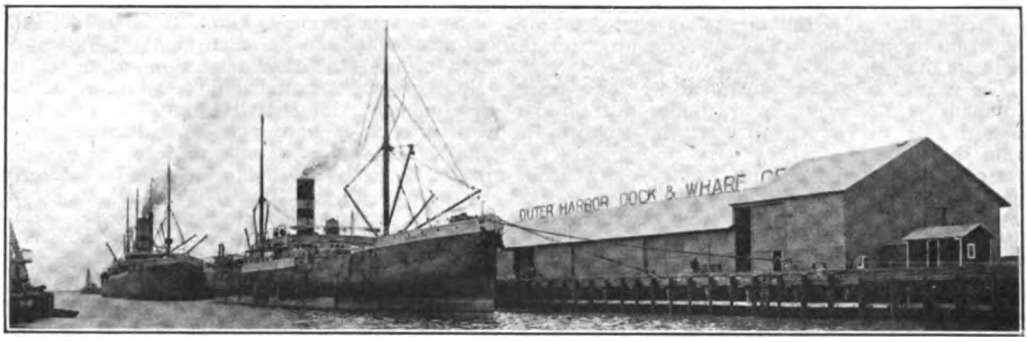
Junction in order to eliminate the back haul on the freight destined for the north and west sides of the city. Property was secured along the west bank of the Menomonee River from Grand aveiue south of the old La Crosse division on which this yard is being built. The river was moved eastward for about 2,000 feet and straightened to provide room for the tracks. With the exception of a small hill at the south end of the yard, which was cut down and the material placed in the embankment, the entire yard is built on a fill averaging 20 feet in height and requiring about 550,000 yards of earthwork. This material was loaded by steam shovels in gravel pits about 20 miles west of the city and brought in by trains. From Grand Avenue Junction four main tracks, two each for freight and passengers, extend south about 1,000 feet to the north end of the new yard. The passenger tracks turn east at this point, while the yard continues south almost to the old La Crosse division tracks, where it turns through an angle of approximately 90 degrees and terminates in a lead to the hump yard a short distance east. Six 80 car tracks extend the entire length of the yard. Eleven other tracks with a capacity of 50 cars each are provided, while four short tracks are built south of the main yards, where way freights can be handled without delay or interference to other traffic.

TERMINAL IMPROVEMENTS AT LOS ANGELES.

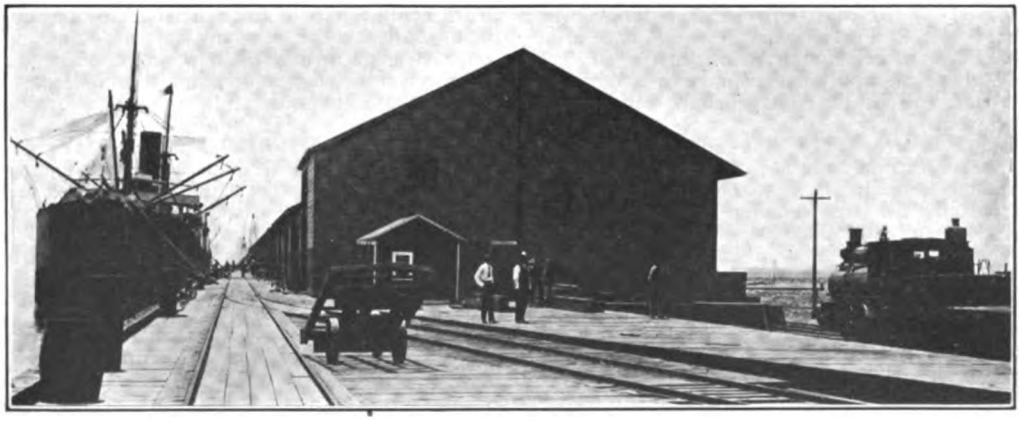
AT Los Angeles, the Outer Harbor Dock and Wharf Company have reclaimed about 157 acres of submerged lands in the outer harbor and are pioneers in constructing new and up-to-date facilities for the handling of the vast tonnage expected to arrive at the port upon the opening of the Panama Canal. This company has departed from the old and antiquated use of wooden piles in constructing their docks, having substituted therefor reinforced concrete, thus eliminating for all time the troublesome teredo and liminoria, the great ocean pests of the Pacific Coast.

A great feature, and one which appeals very forcibly to masters of large oceangoing ships, is the spring fender construction with which the docks are equipped, thus eliminating all strain to ships and docks. When completed, which will be in ample time for opening of the Panama Canal, this company will have about 14,000 feet of quay space; 2,900 feet on the east channel being already completed and in operation, at which are seen the great ships of the Harrison and Kosmos lines, plying direct from European ports to this coast.



OUTER HARBOR IMPROVEMENTS AT LOS ANGELES.

The facilities of surface tracks alongside steam-



SHOWING WAREHOUSES AND TRACKAGE AT SAN PEDRO, CALIFORNIA.

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ers together with depressed tracks in rear of docks permits these ocean leviathans to discharge heavy and bulk freight direct from their slings to cars requiring this service, and at the same time work other hatches with package freight to cars on depressed tracks, thereby insuring the prompt dispatch so essential to all oceangoing ships.

There has been erected a warehouse 56 feet by 713 feet giving ample accommodation for storage of incoming and outgoing cargoes, and this will be increased as business develops and the expansion is warranted. The docks being situated on the west side are served by rails of the Southern Pacific Railroad and Pacific Electric Railroad in addition to which there will be a boulevard 100 feet wide running through the concession and connecting with the municipal harbor boulevard, all of which serves to give these docks transportation facilities second to none both by rail and motor truck.

A large space has been reserved for the location of great fireproof warehouses.

The minor lease covers an area of 5,000 feet in length and 1,150 feet wide at the southern extremity of the present water front of San Pedro and jutting out into the very mouth of the harbor. It is the key to the outer harbor occupying a place quite as advantageous as that held by the Huntington area, where the city proposes to build its municipal wharf No. 1.

The water frontage controlled by the Miner Company is 2,400 feet in a straight line on the eastern side of the channel which separates it from the Huntington area. Its frontage on the western side on the channel separating it from the city's 147 acres, is of the same length, but a basin 1,000 feet wide and running back into the fill for 900 feet has been left and eventually a mole or pier will be run out into this basin, thus giving space for four wharves instead of one.

Stewart wharf No. 1 on the land end of the east channel is completed. Kellogg wharf No. 2 with a warehouse is also completed. McPeak wharf No. 3 is ready for business, which completes the frontage on the east channel. The total length of these three wharves is approximately 2,400 feet.

The Garbutt wharf No. 4 is triangular in shape and lies at the sea end of the east side of the fill. Sheet piling will be driven here and this triangle will be ready for use within sixty to ninety days. It has 1,100 feet of frontage.

Adjoining the Garbutt wharf 1,000 feet has been reserved for the city. On the west channel Rust wharf No. 8, Purcell wharf No. 9 and Miner wharf No. 10 are completed on thirty feet channels, giving an additional frontage of 2,300 feet at the land end of the west channel and seaward therefrom.

Exact figures as to the expenditures of the corporation to date are not available, but it is understood that almost $1,500,000 has been spent. Part of the fill is now under lease to the Union Oil Company, and that corporation plans extensive improvements in addition to those made by the Outer Harbor Company.

To Improve Soo Line Terminals.—Enlarged connection facilities for the Soo Road and a series of improvements and new undertakings in and around Duluth are planned at a cost that will approximate $750,000.

Terminal Improvements at Cleveland. — The National River and Harbor Commission has under consideration, in connection with plans for lake front development in Cleveland, the establishment of a great union freight depot with a net work of switch tracks spreading out over land owned by the city and the railroads.

To Improve Passenger Facilities for Utica, New York.—In plans for the reconstruction of Utica's railway facilities the city is provided by the New York Central with a passenger station to cost $700,000, in addition to ample freight-house accommodations. The representatives of the city and the railroad company have reached a compromise in solving the problem.

Pennsylvania Railroad Improvements at Wilkinsburg, Pa.—Contracts have been awarded by the Pennsylvania for the elevation of its four tracks through Wilkinsburg, Pa., at a cost of $2,250,000. The work will probably be completed by January, 1915.

New Orleans Terminal Project of the Texas and Pacific.—Arrangements have practically been completed for financing the $10,000,000 terminal project of the Texas & Pacific in New Orleans.

Spokane's Terminal Plan.—All plans have been completed for the Spokane Union Terminal Station of the Oregon-Washington Railroad and Navigation Company and the Chicago, Milwaukee and St. Paul Railroad. The rest of the entire work, including tracks, buildings and viaducts, also the rights-of-way, totals $6,400,000, of which $2,000,000 is being expended on improvements. The work is well under way and excavating work is progressing rapidly.

New Shops for the Alton.—Ground was broken July 1st for the new shops of the Chicago and Alton in Bloomington. The plant will cost $1,000,000 and will replace the present antiquated buildings and machinery. Some time ago the management offered to construct new shops and a new depot, providing the city donated sufficient land. Citizens subscribed $165,000, and the land was purchased and turned over to the company.

Western Maryland's New Terminal at Cumberland Completed.—Improvement work costing thousands of dollars has been completed by the Western Maryland Railway at Cumberland, this work being a part of the extensive new terminals being built by the company at that point. The improvements include the new roundhouse, power plant, machine shop and engine terminals located at Maryland Junction.

Southern Pacific to Enlarge Freight Yards at Galveston. — A deal has been consummated whereby the Southern Pacific has acquired property located in the western part of Galveston, comprising two and a half city blocks and adjoining the freight terminus of the railroad company, which will enable both steamship and rail lines to handle city freight much more economically than now. The compress company has been desirous of securing more commodious quarters for some time. The deal involved $200,000.

Chicago Union Station Company Incorporated.—The Union Station Company, a $50,000,000 cor-

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poration organized to maintain a Union Station in Chicago, has been incorporated.

The petition recited that three systems all entering Chicago, are desirous of forming a corporation to maintain a Union station. Shares to the amount of 500,000 at a par value of $100 each are to be issued, of which $25,000,000 worth will be held by the Burlington road and $12,500,000 by each of the other roads forming the corporation.

The incorporators are Darius Miller, president of the Burlington; A. J. Earling, president of the St. Paul, and Samuel Rea, president of the Pennsylvania. The directors for the first year are Joseph Wood and J. J. Turner, of Pittsburgh, and Mr. Miller and Mr. Earling.

It is announced that the new union station will be located on the west side, on the side proposed by the Pennsylvania group of railroads. Actual construction work will be started by November 1st.

Extensive Terminal Improvements for Philadelphia.—The removal of all grade crossings in South Philadelphia, a large increase in the port facilities of the city and other improvements at an estimated cost of more than $18,000,000 have been agreed upon at a recent conference at Philadelphia between city officials and representatives of the railroads affected. The city's share will amount to $9,796,000, while the Pennsylvania Railroad will expend $7,057,000 and the Baltimore & Ohio $1,904,800.

The plan, which will be worked out in detail by the attorneys for the city and the railroads during the summer for submission to councils next fall, includes the purchase of the railroad piers at Greenwich Point and Snyder avenue by the city and the erection of new freight yards and steamship terminals on what is now marsh land adjoining the Philadelphia Navy Yard on the north. About 4,000 acres of marsh land will be reclaimed for home and factory sites.

Baltimore Improvements of the Pennsylvania.—The following letter written by President Rea, of the Pennsylvania Railroad, to Mayor Preston, of Baltimore, briefly outlines the scope of the terminal improvements which that road proposes for that city:

"Philadelphia, July 23, 1913.

"Hon. James H. Preston, Mayor of Baltimore, Baltimore, Md.:

"Dear Sir:—My letter to you of May 27th last, on page three, contains the following statement:

"'The Calvert Terminal outlay, plus that for Bayview and Canton, will involve an expenditure, for property and construction, estimated at close to $10,000,000.'

"The 'Baltimore News' recently requested me to give it the details of this expenditure. I replied that the matter was entirely in your hands and I could not consistently give any. information, except to you, which I now do as follows:

"For revision of tracks and enlarged railroad yard in the vicinity of Bayview; for real estate, tracks, buildings and other railroad appurtenances, estimated expenditure	$3,200,000
"In the Canton district, for real estate, new coal pier, new yard tracks, buildings and appurtenances, estimated expenditure	2,800,000
"For Calvert terminal, under plans submitted with our proposal of May 27, we estimate that it will require for real estate, yard tracks, buildings, street and other improvements	4,000,000
"Total	$10,000,000

"To properly accommodate the traffic of the system, I feel that the above expenditure should be increased by $2,000,000 to fully effectuate our proposed plans, but this can be made in the future. Very truly yours,

"SAMUEL REA, President,"

Interstate Commerce Commission

Commission to Investigate Eastern Rate Situation.

THE Commission has issued an amended order in which it states that it will conduct an investigation in the Fall regarding the necessity of increasing the rates of the Eastern carriers. In connection with the issuance of the order the Commission makes two observations: (1) The fact that we have decided further to investigate this subject must not be taken as an intimation that the Commission has reached the conclusion that revenues are inadequate or that rates should be advanced. Upon this question no opinion has been formed. (2) That the statute gives to any party the right to attack by complaint any rate, and no general conclusion which the Commission may reach and announce in this investigation can affect that right.

In the preface to its order the Commission says that "being of the opinion from a consideration of the allegations of the petition that the need of and justification for additional revenue should be at the present time further examined," an inquiry is ordered into these points: "Do the present rates of transportation yield adequate revenues to common carriers by railroads operating in Official Classification territory? If not, what general course may carriers pursue to meet the situation?"

In dissenting from the decision of the majority to make the investigation, Commissioner Clements said: "Nowhere in the law is the Commission authorized to fix absolute or minimum rates. It is authorized to suspend pending investigation rates proposed by the carriers before they become effective, only when such proposed rates have been filed pursuant to the requirements of Section 6 of the Act, the provisions of which demand specific statement of the rates proposed. It is not contended that upon a general inquiry by the Commission such as is here instituted, it could enter an order requiring or authorizing an increase of rates; yet this is a proceeding for the avowed purpose, among other things, of inquiring whether the present rates of the carriers af-

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ford adequate revenue. In my view, any expression of opinion on this question, following a general inquiry of this kind not based upon specifically proposed rates filed according to law, involves a determination of some of the most fundamental and important questions respecting the reasonableness of rates not before us, and contemplates the possibility of giving some sort of general sanction to advanced rates to be hereafter filed by the carriers."

Largely owing to the dissenting opinion above referred to, it is understood that the Eastern roads are now preparing new tariffs showing a uniform increase of five per cent in rates which they hope to have ready for filing early in the Fall. It was at first thought that the Commission's order would obviate the necessity of the railroads going to the heavy expense of preparing these tariffs, as it was at least intimated in the order that a horizontal five per cent increase, even should the Commission look favorably upon the carriers' demands, might not be found the desirable or practical method whereby the carriers might procure the necessary increase in devenues. Furthermore, recent decisions by the Supreme Court would appear to strengthen this contention. However, it has been decided to file the tariffs with the hope that such action will hasten the relief which is so necessary to enable the roads to properly conduct their business.

The favorable decision which resulted in the order to inquire into the Eastern rate situation, was reached by a bare majority, three of the Commissioners, Messrs. Clements, McChord and Marble, dissenting.

State Commissions to Assist in Physical Valuation.

AT a meeting of a special committee representing the National Association of Railroad Commissioners held recently at Chicago, it was decided to furnish all assistance possible to the Interstate Commerce Commission in its task of appraising railroad property throughout the United States.

All statistics in possession of State railroad commissions relative to the physical valuation of railway property will be placed at the disposal of the appraisal experts recently appointed by the Interstate Commerce Commission. In addition, representatives of the different commissions will be present at meetings of these experts.

For the purpose of making the valuation the Interstate Commerce Commissioners have divided the country into five districts, each district to be under the supervision of a member of the board of appraisers. Commissioner Prouty will have general supervision of the work.

The railroads also have perfected an organization to co-operate in the appraisal work. They have divided the country into three districts, and in each district three railroad engineers will devote their entire time to valuation matters. They will lend assistance to the appraisers in the employ of the Government. The railroads have chosen three lawyers and three real estate experts to co-operate with the engineers in each district.

Railroad Commissioners present at the meeting were Halford Erickson, Wisconsin; O. P. Gothlin, Ohio; Clifford Thorne, Iowa; George A. Henshaw, Oklahoma; Charles F. Staples, Minnesota; H. S. Martin, Kansas; Orville F. Berry, Illinois; C. L. Glasgow, Michigan, and H. T. Clark, Jr., Nebraska.

The stupendous character of the work involved in this physical valuation is emphasized in a statement issued by the Civil Service Commission, which is charged with recruiting the vast army of experts and other employes required for the undertaking. The first of the examinations in this new field of civil service employment, were held in all of the States and in the territories of Hawaii and Porto Rico, on July 21st and 23d. So great is the interest among those seeking employment that already about 20,000 inquiries have been received at Civil Service headquarters. From all parts of the country letters have poured in at the rate of from 600 to 1,000 daily since the announcement on June 14th of the first examination.

Not only will a large force be required to complete the initial work of appraising the valuation of all the railroads of the country, but after the final figures are obtained it is probable that a considerable number will be required to keep the information up to date. Thus it will be seen that the work about to be undertaken will be permanent for a great number of employes under the civil service.

Most of the positions pay good salaries, as Government salaries go, and this is obviously what has caused the large number of inquiries. Junior positions of architect, mechanical engineer, railway signal engineer, electric engineer and structural engineer will be paid from $1,080 to $1,500 a year. Junior positions of civil engineer, inspector of car equipment and inspector of motive power will pay from $1,200 to $1,500. Senior inspectors of car equipment and senior inspectors of motive power will receive from $1,800 to $3,600 a year. There will be two grades of each of senior structural engineers, senior civil engineers, senior electrical engineers, senior railway signal engineers, senior mechanical engineers and senior architects. The first grade will pay salaries ranging from $3,000 to $4,800 a year, and the second grade from $1,800 to $2,700.

As to the procurement of Army engineers to assist in this work, the Commission's request for assistance of this character has been refused by the Attorney General, who rules that there is no warrant of law for such diversion of the engineers from their legal duties. In order to put into operation the provisions of the law the Commission has asked for an appropriation of $1,500,000 in the deficiency bill now being prepared by the House committee.

A Ruling on the Marking of Packages.

THE Commission has issued a conference ruling relating to the markings of less than carload shipments which reads as follows:

"Besides being expressly so provided in the rules of all freight classifications, it is on broad, general grounds the duty of a shipper correctly to mark packages of less than carloads freight intended for transportation; and when so marked the carrier is held to a strict responsibility for their safe delivery at destination.

"In a case where a package of merchandise was addressed by the shipper to Lake City, Fla., instead of Lake City, S. C., it is held that the shipper making the error must bear the burden of the resulting freight charges; and the fact that

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the correct address was noted on the bill of lading is not material."

The Commission also issued the following ruling relative to the shipment of dangerous articles:

"When cylinders containing inflammable gases are not boxed or crated for shipment, the safety device and discharge valve must be made safe from injury during transit by a design and construction of the cylinder, or they must be protected by strong metal caps that cannot be detached by rolling the cylinder.

"Carload or large less than carload lots loaded by the shipper, to be unloaded by the consignee, may be transported without crating or boxing, provided the cylinders are loaded compactly in an upright position and are securely braced to prevent any relative movement during transit, according to the general methods prescribed by B. E. pamphlet No. 6, for bracing shipments of explosives."

Further Developments in the Differential Controversy.

ACCORDING to reports from Boston, Commissioner Clark has declared that railroads centering at Boston are not obligated, under the recent decision of the Commission on port differentials, to raise their rates.

Commissioner Clark holds, it is said, that the Commission did not act as arbitrator between Boston and New York. Had it done so it might have been affected or even controlled by considerations which could not be taken into account at all while the Commission was acting officially in the discharge of its duties under the law.

In a statement issued by Mr. Ives and General Bancroft, who represented the city, they say a definite understanding was sought that an arbitral and a legal decision are incompatible and that Boston roads are under no obligation to advance their rates. Such an advance would mean that those from Boston alone would go up, thus throwing that city out of line, not only with New York, Philadelphia, and Baltimore, (the ports directly engaged in the controversy) but also all Canadian ports, and the South Atlantic ports, including Hampton Roads and the Gulf.

The statement further declares, in dealing with the difference between arbitration by the Commission and the consideration of rate cases from a legal standpoint, that a resolution favoring arbitration was adopted by the Commission without regard to the fact that New York commercial bodies declined to be parties to it. Later they filed a formal complaint making it the duty of the Commission to take cognizance and pass upon the same question in the discharge of their duties under the law.

The statement concludes:

"Having lost through legal technicalities our argument that the Boston rates should be reduced to the Baltimore basis, we stand willing to accept the opinion as given; namely, as a formal legal opinion but we see no reason whatever why we should likewise consider it an arbitral decision and submit to adjustment by having our rates advanced, when, under the law the Commission cannot compel an advance.

"While those representing the interests of Boston, including the railroads, believe that they have produced good reasons why—even from a strictly legal and technical standpoint—the rates from Boston should be lower than from New York, they urge the acceptance of the decision of the Commission, as rendered in good part."

Denver and Rio Grande to be Prosecuted.

THE Commission has issued a ruling in which it states it will recommend the prosecution of the Denver and Rio Grande Railroad for violation of the commodities clause of the railway rate law, on the basis that the railroad has been guilty of an unjust rate discrimination in its ownership of coal mines.

New Account Classification for Water Carriers.

COPIES of a "classification of income and profit and loss accounts for carriers by water," has been issued by the Commission and became effective July 1st. This is the first issue of such an expense account for water carriers, and the Commission announced that it is to be used by water carriers having annual operating revenues exceeding $50,000. It was further announced that "nothing in this order shall be construed as depriving a carrier of the right to make whatever analysis of income and profit and loss it may deem proper for the information of stockholders or officials who have the management of its property."

Besides the usual statistics of operation the water carriers were requested to separate an account of income from securities and other assets held in sinking and other reserve funds.

Concerning auxiliary operations the instructions of the Commission are as follows:

"Carriers by water operating facilities or rendering services other than those in connection with transportation by water or incidental thereto should treat such operations as auxiliary operations when the revenues and expenses thereof, if included in the carriers' accounts dealing with transportation by water, would impair the significance of statistics prepared from such accounts. Carriers should keep separate revenue and expense accounts for each operation conducted and include the aggregate of the revenue and the aggregate of the expenses of auxiliary operations in the respective accounts provided for them in the income statement.

"The following are some of the more important auxiliary operations conducted by carriers by water: Amusement parks and resorts; cab and omnibus service, and hotels and restaurants."

New Form of Trip Pass.

THE Commission has approved a new form of trip pass which is expected to prevent irregularities in the use of this kind of transportation. It was designed by an employe of the Rock Island lines, and consists of three parts: one for a single way trip, one for a round trip and one for two separate trips. In the process of filling it out there is registered on the back a carbon copy of the written matter.

Extent of Frisco Inquiry.

FORMAL investigation into the receivership of the Frisco System has been given by the Commission as follows:

"The Commission having been directed by resolution of the United States Senate, dated June

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10, 1913, (Senate resolution No. 105 of the first session of the Sixty-third Congress), relative to the purchase of the Chicago and Eastern Illinois Railroad by the St. Louis and San Francisco Railroad Company, to investigate, if it has not the evidence on hand, and report to the Senate all the facts and circumstances concerning the purchase of the Chicago and Eastern Illinois Railroad by the St. Louis and San Francisco Railroad Company and the subsequent receivership of both railroads; such information to contain the amount paid per share for both common and preferred stock of the Chicago and Eastern Illinois Railroad by the St. Louis and San Francisco Railroad Company; the time of the issuance of such stock and the amount thereof; guaranties, if any, made with reference thereto; amount of the bonds issued by the St. Louis and San Francisco Railroad Company at the time of the purchase of the said Chicago and Eastern Illinois Railroad: the location of the holders of said bonds; the amount of the same held in this country and abroad, and all the facts and circumstances involved in any way in the transactions between said railroad companies; and all the facts and circumstances leading up to said receiverships, and the progress of said receiverships to date; also the names and the capitalization and bond issues of all railroad or bridge companies controlled by said St. Louis and San Francisco Railroad Company; the time of such acquisitions, how acquired, amount of bonds issued at the time of such acquisitions; and all facts or circumstances involved in such purchase or control; and it appearing that such an investigation involves also an inquiry under the Act to regulate commerce and the several Acts supplementary thereto and amendatory thereof into the management of the business of common carriers subject to the provisions of said acts and the manner in which the same is conducted.

"It is ordered that a proceeding of inquiry and investigation be and the same is hereby instituted into and concerning the several matters and things set forth and referred to in the said resolution, and into and concerning the general financial history, corporate relationships property and other investments, capitalization and indebtedness of the said St. Louis and San Francisco Railroad Company, Chicago and Eastern Illinois Railroad Company and their subsidiary and constituent companies.

"It is further ordered that this proceeding be set for hearing at such times and places, and that such persons be required to appear and testify or to produce books, documents and papers, as the Commission may hereafter direct and that the investigation be carried on in the meantime by such other means and methods as may be deemed appropriate.

"It is further ordered that a copy of this order be served upon the receivers of the said St. Louis and San Francisco Railroad Company and the receivers of the said Chicago and Eastern Illinois Railroad Company."

The Commission's Attitudes on the Parcel Post.

REGARDING the parcel post question the Commission has recently explained its position in correspondence to railroads as follows:

"The Commission does not consider that the provisions in the parcel post Act to the effect that certain changes may be made by the Postmaster General with the consent of the Commission, contemplated that the Commission shall necessarily hold hearings on such proposals, but when, after such investigation as it deems fit, the Commission is satisfied that the proposed changes are in order to promote the service to the public or to insure the receipt of revenue from such service adequate to pay the cost thereof, it is proper for the Commission to give its consent to the change.

"The question of compensation to the carriers for hauling the mails is a matter of contract between them and the Postoffice Department, in connection with which this Commission has no jurisdiction."

To Investigate New York Central's Bond Issue.

FORMAL order for an inquiry into the New York Central's proposed $167,000,000 bond issue to take up other bonds of that company and also stocks of the Lake Shore and the Michigan Central has been issued by the Commission, pursuant to a Senate resolution. Hearings at dates to be later announced, will be held. The Commission at the same time will investigate whether the consolidation of the roads, which would be affected by the proposed bond issue, would be unlawful.

Boston and Maine to Ask for Rate Increase.

PLANS are being made by the Boston and Maine Railroad to submit a request to the Commission asking for permission to make substantial increases in both passenger and freight schedules. The company will contend that the increases which will be sought are necessary to help the Boston and Maine regain its former position in the community to be able to properly serve the shippers, travelers and to regain its lost financial standing.

When the advanced rates have been filed the Commission is to consult with the railroad or public service commissions of Massachusetts, New Hampshire, Vermont and Maine, and it is expected that the arguments for granting the schedules will be made at joint sittings of these bodies.

The figures for New Hampshire, which have been prepared, show that of all traffic either beginning or ending in that State, 90 per cent is interstate and 10 per cent State. Probably the proportion of interstate business is less in the other States involved, but it is estimated that 75 per cent of the total traffic is subject to Federal regulation.

An Important Tap Line Decision.

A DECISION issued by the Commission in the case of joint rates with the Washington Western Railway in sustenance is as follows:

Cancellation of joint rates with a tap line incorporated by the proprietary lumber company for the purpose of getting allowances out of the rates sustained on a finding that with respect to the lumber of the proprietary company the tap line is a plant facility.

"In a lumber-producing territory, where the rates apply in all other instances only from the trunk line junctions with tap lines, it does not

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necessarily follow that the protestant lumber company would be entitled to the group rates even if its tap line on the record was shown to be a full-fledged common carriers."

Lumber Storage Privileges Curtailed.

AN order has been entered by the Commission providing that shippers of shingles from the Northwest to points east of the Missouri River shall no longer be given the privilege of storage in transit at Minnesota transfer and other junction points. It has been the practice of the rail lines for ten years to allow both storage and reconsignment privileges in this traffic.

Ruling on Interurban Lines.

INTERURBAN electric lines operating between Louisville, Ky., and Indianapolis, Ind., have been ordered by the Commission to establish through routes and joint rates on less-than-carload shipments between the two terminal cities and to intermediate points. Specific class rates are prescribed by the Commission. This is the first time several lines, all operated by electricity, have been made the subjects of such an order.

Duluth Wins Rate Case.

DULUTH has won a substantial part of its freight rate fight before the Commission, by procuring a reduction of class rates to that city from Eastern points. The present rates were held by the Commission to be discriminatory. Duluth's contention that rates on lake-and-rail traffic from the East ought to break at its wharves, however, was not sustained.

In brief, the Commission held that the present rail-and-lake class rates to Duluth from points east of the Indiana-Illinois State line were unreasonable, and that the existing scale of through rail-and-lake class rates to Duluth was unduly discriminatory as compared with rates to Chicago. It was ordered that the first class rate from the East to Duluth should not exceed 62 cents a hundred pounds, and that the rates from Trunk Line territory to Duluth, rail-and-lake, should not exceed those to Chicago.

The Commission also held that the present joint through rail-and-lake rates from the East to Duluth deprived Duluth "of the advantage of its location at the head of the lakes" and resulted "in undue discrimination against Duluth, which will be relieved in some measure by the reduction here required."

The railroads were ordered by the Commission to submit tariffs by October 1 containing the changes directed, and also providing for the discontinuance of discriminations against Duluth and towns adjacent to Minneapolis and St. Paul caused by loose policing of transit privileges and long-and-short-haul violations.

Minneapolis Wheat Rates Declared Unreasonable.

THE Commission has issued a decision in the case of the Federal Milling Company against the Minneapolis, St. Paul and Sault Ste. Marie and other railroads holding that the rate on wheat from Minneapolis to New York via Lockport, N. Y., is unreasonable to the extent that it exceeded the rate contemporaneously in effect on flour. The decision says:

"The carriers expressed a willingness to put into effect a rate of 25 cents from Minneapolis to the East on wheat with the privilege of milling in transit at Chicago, in equalization of practically the same disability at Chicago of complainant at Lockport with respect to the 25-cent rate on flour east of Minneapolis. We find no justification upon this record for a higher rate on wheat than on flour between Minneapolis and New York City, and we think an arrangement similar to that proposed at Chicago should be made effective on wheat milled at Lockport."

Important Grain and Flour Decision.

IN a decision of the case of the Chicago Board of Trade against the Chicago and Alton and other railroads, the Commission holds that "proportion rate of 10 cents per 100 pounds on wheat from Minneapolis to Chicago to be neither unreasonable nor unjustly discriminatory.

"An arrangement under which Minneapolis pays 25 cents on flour to the East and to Central Freight Association territory, while Chicago must pay 10 cents more than Minneapolis for its wheat and 16.7 cents East on its flour, a total of 26.7 cents, is unjustly discriminatory and the discrimination should be removed.

"Chicago's failure to attract wheat in the same volume as Minneapolis is a disadvantage due to commercial rather than transportation conditions and is not chargeable to the defendants.

"Wheat, on the one hand, and barley, rye, oats and other coarse grains, on the other, do not constitute such 'like traffic' that a different charge for their contemporaneous transportation is violative of Section 2."

Lumber Rates Sustained.

THE Commission has sanctioned the proposed advance in the rate on lumber, staves and headings from Memphis, Tenn., to New Orleans, La. In connection with this case, the Commission made the further notation:

"Those parts of the fourth section applications of the Illinois Central Railroad and the Yazoo and Mississippi Valley Railroad asking permission to charge lower rates on lumber, staves and headings from Memphis to New Orleans than from intermediate points will be denied.

"Proposed advanced rates on lumber, staves and heading from points on the Illinois Central Railroad and the Yazoo and Mississippi Valley Railroad between Memphis and the line of the Southern Railway in Mississippi found not to have been justified in so far as they exceed 11 cents per 100 pounds.

"Proposed advanced rates on these products from points on the Illinois Central Railroad and the Yazoo and Mississippi Valley Railroad south of the Southern Railway in Mississippi found not to have been justified.

"Proposed advanced rates on gum lumber and staves from Helena and Arkansas City, Ark., found to have been justified.

"Proposed advanced rate from Alexandria, La., found not to have been justified in so far as it exceeds eight cents per 100 pounds."

The decision is to take effect August 20th.

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New Haven Commuters' Case.

A DECISION has been handed down by the Commission in the Connecticut commutation rate case, holding that the commutation fares on the New York, New Haven and Hartford Railroad from points in Connecticut into New York City have not been found to be unreasonable with the exception as to stations within the 25 to the 35 mile zone. The report as written by Commissioner Harlan says:

"A careful examination of all the other fares in the New Haven commutation schedule fails to reveal any that is fairly open to criticism, when tested either by the fares of the Pennsylvania for similar distances or by the fares of any other of the New Jersey carriers, or when tested by any other matters shown of record. When the fares from points within that zone shall have been reduced to the basis here suggested the New Haven schedule as a whole will be slightly lower than the Pennsylvania schedule, the differential ranging from 25 cents at the nearer points to $1.15 at the more distant points. This is as it should be. The commutation traffic of the New Haven is very materially more dense than on the Pennsylvania. Giving due consideration to this and other facts shown of record, we think that the New Haven schedule of fares for this service may properly be somewhat lower than that of the Pennsylvania; and that is their basis at this time, with the exception of the fares in the 25-35 mile zone, which we have condemned as excessive."

Rate Suspensions.

AMONG recent rate suspensions ordered by the Commission are the following: Proposed 21-cent advance in freight rates on stave, splint and rattan baskets from points east to points west of the Mississippi River; proposed increase on freight rates on flaxseed ranging from 6 cents to 11½ cents from Minneapolis and other Northwestern points to Missouri River destinations; proposed increase in the rates of grain and grain products from points north of the Ohio and east of the Mississippi River, to destinations in other parts of the country found in freight tariffs filed by Central Freight Association; new tariffs of the Rock Island which propose to cancel through rates now in effect and applicable to the transportation of grain and grain products from points in Chicago, St. Louis and Mississippi rate territory to stations located on the Ft. Smith and Western Railway in Oklahoma; proposed advances in rates on coal from mines in Indiana and Illinois to points in Iowa; proposed advances in rates on structural and bridge iron and steel stopped in transit for fabrication at fabricating points on the Wheeling and Lake Erie Railroad; proposed cancellation of through rates from and to stations on the Kansas City and Memphis and points on or reached by the St. Louis and San Francisco Railroad; proposed advance in lumber rates and articles taking lumber rates, from points in Wisconsin, Louisiana, Oklahoma and Texas points in Iowa, Wisconsin and other States; proposed advances in rates on crushed stone from points in Illinois to various points in Indiana and Michigan; proposed advances on fruit and vegetables between California and Nevada and other Western States.

TRAFFIC AND RATES.

General Traffic Conditions.—Whatever the outlook is for general business, and there can be no doubt that at the present time there is a general feeling of hesitancy, it is having no effect upon the tonnage of the railways. With grain crops in a healthy condition and largely in excess of those for 1912; with the cotton crop estimated at nearly 14,000,000 bales and with the export business of the country running far ahead of what it was last year, the real problem which is facing the railroads is not how to procure business, but how to successfully handle that which is already in sight. Railroads all over the country are busy and never at this season of the year have Western and Southwestern railroads moved as many cars, all well loaded and paying a good revenue. So far, this enormous business is being handled without delay and with satisfaction to shippers, and few of the roads, as yet, are operating up to their full capacity, but from the way business is moving it looks as though they would be in the near future. While little or no talk of car shortage or congestion is heard at the present time, it is, nevertheless, receiving the earnest consideration of traffic officials who appreciate that with the bumper grain crops to be moved every facility must be strained to the utmost in order to avoid the deplorable conditions of past years.

The latest report of the Bureau of Foreign and Domestic Commerce, shows that during June, merchandise left the shores of this country for foreign consumption to the value of $163,000,000 as compared with $138,000,000 in June, 1912. On the Great Lakes the tonnage passing through the Sault Ste. Marie Canal during June amounted to 12,113,613 tons against 10,747,159 tons in 1912. In the east the anthracite coal shipments from Pennsylvania for the same month totalled 5,970,047 tons as against 6,191,646 tons for the same month in 1912.

Isthmian Traffic.—Trans-isthmian traffic via the Panama and Tehuantepec railroads, amounted to approximately 132 million dollars value in the fiscal year 1913, against 21 million in 1907, 42 million in 1908, 62 million in 1909, 82 million in 1910, 103 million in 1911, and 141 million in 1912. The decrease of about 10 million dollars in 1913 as compared with 1912 is due to a large reduction in the value of sugar sent from Hawaii to the eastern coast of the United States. In the west-bound traffic the figures for 1913 are five million dollars greater than those of 1912, but in the east-bound traffic there is a reduction of approximately 15 million dollars, due chiefly to a fall in both quantity and price of sugar sent from the Hawaiian Islands to the eastern coast of the United States; though certain other articles from the Pacific coast of the United States also show a slight reduction in 1913 compared with 1912.

Freight Rate Increases.—Tariffs providing for a general increase in freight rates of five per cent will be filed some time early in the Fall by railroads operating in Central Freight and Trunk Line territories. The various rate committees and clerks are busily engaged revising these rates at the present time.

Revision of Passenger Fares. — A revision downward of interstate passenger fares has be-

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gun by Western and Central Passenger Associations in compliance with an order by the Interstate Commerce Commission that the new rates will be made effective May 1, 1914. Passenger officials of railways entering Chicago, state that it is doubtful if the task of revising the tariffs can be completed within the time limit prescribed by the Commission.

The long and short haul clause of the Interstate Commerce law which prohibits a higher charge for a through rate than the aggregate of the local fares, became effective July 1, 1910, but the Commission suspended the time for its enforcement.

To Stop Free Freight Delivery.—The Pennsylvania Railroad Company will, on September 1st, discontinue the practice of free delivery of freight in both Washington and Baltimore. These heretofore have been the only cities in the United States enjoying free delivery. It is the view of the railroad company that as the conditions what one time justified this privilege, no longer prevail, the practice should now be abandoned.

The present arrangement was originally adopted in both cities as a temporary expedient. The practice in Baltimore, was established in 1870 and free delivery was inaugurated for the prompt relief of the cars and warehouses of the railroad company.

The company says:

"Under the Interstate Commerce Act it becomes necessary for the railroad companies to standardize their practices and seek uniformity of method throughout their operations. It is but proper therefore to eliminate the exceptions at Baltimore and Washington and put these two cities upon the same basis in the matter of freight delivery as other cities in the United States."

Boston and Maine to Ask for Rate Increases.—Boston & Maine Railroad freight and passenger rates are being revised and the Interstate Commerce Commission will be asked to approve substantial increases. The Commission will consult with the railroad commissions of Massachusetts, Maine, New Hampshire and Vermont, with which it will hold joint hearings.

The new schedules will show what part of the traffic affected is interstate and what part is state. The figures for New Hampshire, already prepared, show that of all traffic either beginning or ending in that state, 90 per cent is interstate and ten per cent state. The company will contend that the increase is necessary to carry out the contemplated improvements on the Boston & Maine and to meet maturing obligations.

Important Changes in the Operation of the Parcel Post.—The Post Office Department has announced important changes in the operation of the parcels post system, including an increase in the maximum weight limit on packages from eleven pounds to twenty pounds, a reduction in the rates of postage within the first and second zones and the substitution of a convenient rate chart for the elaborate parcels post map in determining postage rates.

It is understood that concerted opposition has developed in Congress to these changes, and that there is likely to be a bitter contest over their becoming effective. It is the opinion of some members of Congress that such a change would entail an enormous loss to the Government, and that the Post Office Department has thus far failed to furnish either branch of the legislature with satisfactory data concerning the financial operation of the parcel post.

Friction between Congress and the Postmaster General is said to have arisen over several points. The Senate Committee is said to be chagrined because the Postmaster General announced his proposed changes before sending the committee a reply to a request for his opinion on the Bryan bill. Consideration of the bill had been delayed pending his response. The joint committee to investigate parcel post, composed of members of the Senate and House Post Office Committees, is dissatisfied, too, because the request of its chairman, Senator Bristow, several weeks ago for data in regard to the operation of the new parcel post has brought no results.

Low Grain Rates to the Seaboard.—For the first time probably in twenty years the lowest lake and rail rates available from Chicago to New York cannot fully compete with the present all rail freight basis from the Missouri River and Chicago to Baltimore and Philadelphia. The two last named cities enjoy an all rail rate on export wheat of 1½ cents and one cent respectively, lower than that from the West to New York. The Buffalo and New York railroads have declined to reduce the all rail rate Buffalo to seaboard. Present conditions are for allowing a free business all rail from Chicago to Baltimore, which would be impossible with only a very small fractional reduction in the present extremely high Buffalo-New York rate. Baltimore has been a heavy buyer of all rail wheat for shipment from Chicago and also bought for all rail shipment from St. Louis.

ORGANIZATION NOTES.

Campaign for Uniform Mileage Book.—The Travelers' Protective Association has named a railroad committee with instructions to campaign for a uniform mileage book good on all railroads in the United States. The trunk lines east of the Rocky Mountain district have been divided into four additional districts, each represented by a member from the committee. Other districts are the South Atlantic States; the States of Ohio, Indiana, Michigan, Texas, Louisiana, Arkansas and Missouri; Wisconsin, Minnesota, Iowa, North and South Dakota, Nebraska and Kansas.

Annual Meeting of the Society of Railway Financial Officers.—The annual meeting of the Society of Railway Financial Officers for the year 1913, will be held at the Hotel Moraine, Highland Park, Illinois, on September 23rd, 24th and 25th. The first session will convene at 2.00 o'clock P. M. on September 23rd.

Highland Park is situated on the west shore of Lake Michigan about twenty-three miles due north from the center of Chicago. It is a very attractive place, having excellent hotel facilities, splendid golf links and other attractions.

Flint, Michigan, Transportation Club.—The Transportation Club of Flint, Mich., was organized with the following officers: President, M. E. Kinball, of the Buick traffic department; vice-

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president, F. E. Badger, of the J. B. Armstrong Co.; secretary, W. O. Reynard, of the Weston-Mott Co.; treasurer, J. S. Tennant, of the Durant-Dort Co.

Annual Election of the Railroad Club of Kansas City.—The annual election of officers of the Railroad Club of Kansas City, resulted as follows: President, T. Percy Bryan, of Gray & Bryan; vice-president, George E. Roe, general agent, A. T. & S. F. Ry.; Samuel C. Wilson, superintendent Mo. Valley Demurrage and Storage Bureau; secretary, Claude Manlove; treasurer, Ewing Duval, general agent, C. G. W. Ry.

Meeting of Southwestern Passenger Association.—At a meeting of the Southwestern Passenger Association, held at St. Louis, July 9th and 10th, an understanding was reached to concur in certain amendments to the baggage rules, which had been recommended by the standing committee on these rules at a conference in Chicago the latter part of June. Drum cases and cylinders, which had been eliminated as sample baggage, were reinstated.

It was also understood that the October meeting of the Southwestern Passenger Association would be held in St. Louis at a date to be later fixed.

The same general basis of winter tourist fares was adopted by southwestern lines as had been previously in effect, with the usual selling dates and limits, and circulars will be issued at as early a date as convenient.

The usual docket of routine subjects was submitted for consideration, but definite conclusions were not reached.

For the G. A. R. gathering at Chattanooga in September, a rate of two cents per mile in each direction was established added to the tender of the Southeastern lines.

Central Freight Association Meeting.—At Chicago, on July 15th, changes in class and commodity rates in the territory east of the Mississippi and north of the Ohio rivers, were discussed at the meeting of representatives of railroads affiliated with the Central Freight Association. A number of increases and several reductions in rates were approved.

To Extend "Safety First" Movement.—A wide extension of the "Safety First" movement on railroads throughout the United States is expected as a result of plans perfected by the committee on transportation of the American Railway Association.

At the present time about one-half of the rail lines have safety organizations and an effort is being made to induce the others to form safety committees as soon as possible.

It is proposed that on each road there shall be a central safety committee, composed of the general and division officers of the company. This committee will be assisted by division, shop and terminal safety organizations. The officers of the latter will hold their positions permanently, but changes among employe members will be made at intervals, with a view of giving all employes an opportunity to become familiar with safety plans. Employes who act as members of any of the committees will be paid their wages in full while attending meetings, and also will be compensated for any expenses incurred while performing this duty.

Among those engaged in promoting the plan are: R. C. Richards, general claim agent of the Chicago and Northwestern Railway; George Bradshaw, general safety agent of the New York Central lines; W. B. Spaulding, claim attorney of the St. Louis and San Francisco Railroad, and S. J. Peterson, general claim agent of the Union Pacific Railroad.

Farewell Dinner to Mr. B. L. Winchell.—Receiver B. L. Winchell of the Frisco, was given a farewell dinner at the St. Louis Club by the chief executive officers of the Frisco family at St. Louis headquarters. It was a simple, sincere expression of good will on the part of the men who had labored with the president of the Frisco for several years past, all of whom hold the retiring chief in the highest esteem and regard and wish him all success in assuming the duties of the foremost position in the traffic world.

Passenger Fare Controversy in Iowa.—The Western Passenger Association, which had hoped to maintain a minimum fare of two cents a mile in States where the law fixes two cents a mile as the maximum fare, has sent a committee to Des Moines to consult Clifford Thorne and other members of the Iowa Railroad Commission regarding the new law providing a fare of 1½ cents a mile to and from county fairs and other gatherings where the attendance is 75,000 or more. The committee presented arguments as to why two cents a mile should be the minimum in Iowa.

Campaign for Legible Shipping Orders.—A campaign to induce shippers to furnish railway companies with legible shipping orders is being conducted under the auspices of the Chicago Association of Commerce. A committee has been appointed to confer with officers of various trade organizations for the purpose of urging business firms to require clerks to prepare shipping orders so they may easily be read. The committee also will ask shippers to use more care in packing freight and marking shipping boxes.

International Congress of Refrigeration to Meet in September.—Thousands of delegates from all over the world are expected to attend the third international congress of refrigeration, which will be in session from September 17th to October 1st.

The Congress in reality is set for Washington and Chicago. The opening meeting will take place in the capital city on September 15th, with President Wilson as the chief speaker. Then the foreigners attending will be rushed to Chicago on a special train for the sessions to be held here. The congress will bring to Chicago leading scientists, diplomats and experts on refrigeration from all points of the compass.

The congress is held every three years in different countries. It was inaugurated in 1908 at Paris, and in 1910 was held in Vienna.

American Railway Tool Foreman's Association Elects Officers.—A. M. Roberts, of Greenville, Pa., was chosen president of the American Railway Tool Foreman's Association at the closing session of the annual convention and other offi-

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cers were elected as follows: Vice-presidents, Henry Otto, of Topeka, Kan.; J. J. Shehan, of Roanoke, Va., and E. P. Purchase, of Springfield, Mass.; secretary and treasurer, A. R. Davis, of Macon, Ga.

Change in Rules Regarding Sleeping Car Berths.—A change in existing rules that will curtail the time within which advance reservation for sleeping car berths may be claimed was advocated at a meeting of the executive committee of the Western Passenger Association in the Transportation Building. Instead of holding reservations until ten minutes before trains depart, it was suggested that they be canceled at least an hour prior to train time. The Pullman Company will be requested to draft a series of recommendations on the subject and final action, it is expected, will be taken at the next meeting of the committee.

Meeting of Central Passenger Association.—Passenger traffic officials and attorneys of the roads comprising the Central Passenger Association met in Chicago on July 24th, in the office of F. C. Donald, chairman of the association, to discuss ways and means of revising interstate passenger fares. Several methods were discussed and the matter finally was left to a committee.

St. Louis Business Men's League Advocates Rate Increase.—The St. Louis Business Men's League—composed of 2,500 leading business men of that city—has adopted a resolution that

"Whereas, certain railroads in what is known as official classification territory have in effect requested from the Interstate Commerce Commission permission to advance their freight rates uniformly five per cent, and whereas we believe that the railroads are not now receiving sufficient revenue to enable them to perform under present conditions service adequate to the needs of the commerce of the country.

"Therefore, be it resolved that this league hereby request the Commission to grant to these railroads as promptly as circumstances will permit, permission to advance freight rates in the uniform manner set forth in their recent petition upon presentation of such figures as will prove the necessity of such increases."

Annual Convention of International General Foremen's Association.—W. W. Scott, of the Delaware, Lackawanna & Western Railroad, East Buffalo, N. Y., was chosen president of the International General Foremen's Association at the ninth annual convention in Chicago. Other officers elected for 1913 are:

First vice-president—T. F. Griffin, Big Four Railroad, Indianapolis.

Second vice-president—L. A. North, general foreman, Illinois Central Railroad, Chicago.

Third vice-president—William Smith, New York.

Fourth vice-president—William Gale, Chicago & Northwestern Railroad, Chicago.

Secretary and treasurer—William Hall, Chicago & Northwestern Railroad, Escanaba, Mich.

President B. F. Bush Addresses San Francisco Commercial Club.—At a recent luncheon of the San Francisco Commercial Club, President B. F. Bush, of the Missouri Pacific, whose authority has been extended to include the presidency of the Western Pacific, delivered an address in which he alluded to the attitude of the people and the government toward the transportation companies of the United States. He said: "The railroads of this country are down now, and they can not—they will not—go ahead making improvements and building extensions until the public sentiment has changed. The railroads require and must have the hearty support of the American people. We ask for your co-operation."

LEGISLATION.

National.—The tariff continues to consume the greater part of the attention of Congress. Business is apparently marking time awaiting the final action taken on this question, and the party whip is being cracked in order to carry things along as expeditiously as possible.

The most important development of the month, so far as the railroads are concerned, was the passage by the House and Senate of the Newland's amendment to the Erdman Act. As finally agreed upon, this act provides that whenever a controversy rises between railroads and employes that cannot be settled by conciliation, dispute is to be submitted to an arbitration board of six, employers and employes each naming two arbitrators and the four thus chosen to pick the other two. If they fail to name the two the choice shall be left to a Board of Mediation and Conciliation. This board instead of being under the Department of Labor is to be independent of every Government department. The board will consist of a Commissioner of Mediation and Conciliation to be appointed by the President for a term of seven years and two other officials of the Government to be designated by the President.

The appointment of this board and other matters relating thereto, are found more fully discussed in another section of this issue.

Efforts were made by Secretary Wilson of the Department of Labor, to have the chairman of the board come under the jurisdiction of his department, but this effort was defeated and as the law stands, the chairman and its members are independent of all departmental influences.

Senator Poindexter, of Washington, has introduced a bill authorizing the President to construct a railroad in Alaska and to mine coal in that territory. The President is to be authorized to borrow $50,000 for the purpose outlined. The bill would propose that hereafter no coal mines shall be disposed of except under lease.

The whole problem of enacting into law suitable regulations to prevent interstate railroads from doing anything in the way of financial operation aside from holding their own stock and securities and thus to prevent the carriers from continuing the practices of owning or purchasing controlling interests in competing lines not necessary to their legitimate development, has been thrown into the hands of Congress by the Interstate Commerce Commission's findings in the investigation into rates, regulations and practices on the New England lines, according to opinions expressed by railroad officials.

On July 10th, Senator Norris, introduced a resolution in the Upper House calling upon the Interstate Commerce Commission to investigate and report on the proposed issue by the New York Central Railroad of $167,102,400 four per

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cent mortgage bonds for the purpose of taking up outstanding 3½ per cent bonds of the New York Central and against the stock of the Lake Shore and Michigan Central railroads.

The resolution read as follows:

"Resolved, That the Interstate Commerce Commission be instructed to investigate, if it has not the information now in hand, and report to the Senate all the facts and circumstances connected with the proposed issue by the New York Central & Hudson River Railway of four per cent mortgage bonds for $167,102,400 for the purpose of taking up outstanding 3½ per cent bonds now existing against said railroad and the stock of the Lake Shore and Michigan Central railways.

"That the Commission be instructed to furnish the Senate with date and amount of said 3½ per cent mortgage bonds, the reason for their issue, when they mature, whether the issuing of the said four per cent bonds for the said 3½ per cent bonds will not be an unwarranted and illegal capitalization of said railroads, whether the proposed consolidation of said railroads involved in the said proposed issue of four per cent bonds would not be unwarranted and unlawful, and whether the increase of the rate of interest thus proposed by the issuing of said four per cent bonds is necessary, even though the consolidation of said railroads is unobjectionable."

Representative Sims, of Tennessee, has again let it be unmistakably known that he had not abandoned his fight for the abolition of the Commerce Court. He declared he would renew his effort to eliminate the tribunal at the earliest possible moment consistent with the condition of the court's docket.

Senator Chilton has draughted a bill which would prevent a joint ownership of all roads. The bill as it is understood in Washington, is the direct out-growth of the Union Pacific merger case.

An amendment to the laws relating to the issuance of bills of lading by interstate carriers is asked in a bill introduced by Representative Kahn, of California. The amendment provides that all action or suits brought to recover loss, or for damages under a bill of lading shall be begun within one year after the goods covered are damaged or lost.

Senator Martine, who took a prominent part in the West Virginia coal strike investigation, has introduced a draft of a bill to prohibit corporations engaged in interstate commerce from employing armed men. The bill aims to put an end to mine guards and armed railroad detectives.

New York.—Although the Public Service Commission of New York has requested Governor Sulzer to ask the extraordinary session of the legislature, to appropriate $1,250,000 as the State share in the eliminating of grade crossings on the Long Island Road, the Governor has asserted that in all probability he would not make the request. He said, however, that probably some arrangement would be decided upon whereby the First District Public Service Commission would be given authority to enter into contracts for the grade crossing elimination on Long Island without taking any more money from the State Treasury this year, as, he declared, the money would not be needed for two years. Such authority, he explained, would prevent any delay in beginning the work.

The Governor has sent the following message regarding the New York City terminals act to the legislature:

"During the regular session the legislature passed a bill amending transportation corporations law, by making provision which prohibits railroads or express companies from acquiring control in any way of freight terminal companies, shall not apply to freight terminal companies, shall not apply to corporations in the City of New York.

"My approval of this bill was urged by city authorities for the purpose of permitting adequate operation of proposed marginal terminal railway in Brooklyn. The bill, in the form in which it passed the legislature, was not limited in operation to Brooklyn, but affected all five boroughs which was unnecessary for the accomplishment of stated purpose, and I vetoed it.

"I approved certain measures passed by legislature, amending New York City freight terminals act, relative to water front facilities in New York City, which specifically related to contemplated Brooklyn terminal improvement. Authorities of the city of New York and the State Engineer, after careful examination of the situation, have advised me that the plans agreed upon and contemplated by the municipal authorities for efficient operation of terminals on South Brooklyn water front cannot be consummated without statutory authority permitting railroad companies to hold stock in terminal freight companies in Brooklyn.

"I feel convinced that the proposed development is of the greatest importance to the Port of New York and to business interests of Brooklyn, and believe it is but proper for this Legislature to afford means necessary to grant the city authorities power for a complete establishment and efficient operation of this great proposed freight terminal.

"Under the circumstances I recommend to the legislature for its favorable consideration, an amendment to the law that will permit and secure joint operation of the proposed terminal railroad in accordance with plans contemplated and approved by municipal authorities of the city of New York."

Massachusetts.—The legislature of Massachusetts has passed a law empowering the New York, New Haven and Hartford to own, operate and extend electric railways in the western part of the state—the law covering, it is said, all of the city and interurban lines west of Worcester. This law was adopted on June 12th by very large majorities in both houses, after it had been vetoed by the governor. On June 12th, also the governor vetoed the bill to enlarge the number of men in the Railroad Commission, to change the title of the Commission, and to give it many new powers and this law also was soon adopted over the governor's veto.

Under the new law, which is called the Washburn law, the Railroad Commission becomes the Public Service Commission and will have five members instead of three. It gives extensive power of regulation of railways, similar to those of the public service law of New York, and the board will have the same authority to enforce its orders reducing rates, etc. There is the usual elaborate prohibition of free passes and free

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service. The Commission is specifically authorized to order changes in the number of men in train crews. Two sections concerning which there was much controversy and the terms of which were given by the governor as the chief reasons for his veto, sections 15 and 16, authorizing railways to incur indebtedness equal to twice the amount of their capital stock, but every act of a corporation in financial matters is under the close supervision of the Commission.

STATE COMMISSIONS.

Arizona.—The Corporation Commission has denied the petition of the Southern Pacific Railroad to issue $30,000,000 of trust notes, but it is announced that this action has no bearing on the $20,000,000 Southern Pacific one-year notes recently purchased by Kuhn, Loeb & Co.

The Corporation Commission has granted permission to the El Paso & Southwestern Railroad Company to consolidate the six companies comprising the system, which controls 458 miles of road in Arizona and 440 miles in New Mexico.

California.—By a decision of the Railroad Commission, the State takes unto itself the power to regulate the rates of steamship companies plying over regular routes from one California port to another, even though the ships making such trips traverse the high seas.

Canada.—The Railway Commission has issued regulations standardizing safety appliance equipments to conform to the requirements of the United States as set forth by the Interstate Commerce Commission.

Illinois.—A sweeping revision of the freight classification is now being made by the State Railroad and Warehouse Commission. This is the first revision of the classification in Illinois since 1906 and on account of the immense amount of work involved it is expected that fully nine months will elapse before the task can be completed. One of the features of the new classification will be an increase in carload minimum weights for certain commodities. Thirty-five general rules which will govern the compilation of the new classification have already been adopted. Hundreds of changes will be made in descriptions and package specifications and in the course of the work it will be necessary to analyze thousands of items.

Iowa.—Railroads operating throughout Iowa have decided to apply to the State Commission to contest the validity of the law passed at the last session of the legislature which provides that a fare of 1½ cents a mile in each direction shall be the maximum charge for the transportation of passengers to county fairs and all other gatherings where the attendance is 75,000 or more.

Maryland.—Application of the Union Pacific Railroad Co. and the Oregon Short Line Railroad Co., a subsidiary, to acquire $21,273,600 of common stock and the same amount of preferred stock of the Baltimore & Ohio Railroad Co., now held by the Pennsylvania Railroad Co., has been granted by the Public Service Commission.

Answers to complaints of representatives of various small towns along the line of the Western Maryland Railroad, about the changes in schedule caused by the installation of the through service to Pittsburgh and Chicago, have been filed with the Public Service Commission.

Massachusetts.—The new State Transportation Commission, which replaces the Railroad Commission, has been appointed by Governor Foss.

The membership of the board, and the periods of service are: Frederick J. McLeod, of Cambridge, five years; George W. Anderson, of Boston, four years; George P. Lawrence, of North Adams, three years; Clinton White, of Melrose, two years; George W. Bishop, of Newton, one year.

Missouri.—The State Public Service Commission has been requested to pass upon the question whether the railroads may legally exact three cents a mile from passengers who proffer cash fare on trains instead of a ticket. Complaints have been made to the Commission by persons who say they boarded the trains without tickets and were charged three cents a mile although tickets are on sale for two cents.

The Public Service Commission has ruled that the railroads were entitled to issue free transportation only to such local employes as were employed by the companies and who devote a portion of their time to work for the roads. The companies could employ only such local attorneys as were necessary to do its work.

The Commission also ruled that two bondsmen for common carriers would be permitted free transportation in each county, limited to the counties for which they were appointed.

The State Public Service Commission has begun an inquiry as to whether the Commission has power to establish coal rates by zones so that mines nearest the market may not be able to secure a monopoly in the sale of coal and shut out their competitors.

D. B. Pigg, of Calhoun, a coal operator, complained that the Missouri, Kansas & Texas Railroad charges 70 cents a ton to Nevada from Calhoun, a distance of 62 miles, and 60 cents a ton from Calhoun to Sedalia, a distance of 28 miles.

Application has been made to the Public Service Commission by the Kansas City Terminal Railway Company for permission to issue $5,000,000 of five per cent notes.

New Jersey.—The Public Utilities Commission has refused to sanction the lease of the West Jersey & Seashore Railroad to the Pennsylvania Railroad.

The stockholders of the West Jersey & Seashore on April 30th last, voted to lease the road to the Pennsylvania for 999 years from July 1, 1913. The rental was to cover interest on bonds or other debt, dividends at six per cent yearly on the common stock, payable semi-annually, 1½ per cent to be paid July 1st, and also on special guaranteed stock, dividends on stock to be issued under the lease and on stock of constituent companies under the consolidation agreement of February 28, 1896.

In its decision the Commission said that approval was not necessary and dismissed the application.

New York.—The Public Service Commission has denied the application of the New York Central & Hudson River Railroad and several

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of the Brooklyn rapid transit companies for a rehearing on the order made by the Commission April 25th, requiring all public service corporations using high tension electric apparatus to adopt certain safety appliances and to take certain precautionary measures to protect their employes against injury from electric apparatus or steam engines or boilers.

Oregon.—The State Railroad Commission has begun an investigation of the demurrage rates of railways, it being alleged by the lines operating in the State that the charge of $2 a day for cars held beyond the time limit by shippers was insufficient. The railroads declare that the charge should be $3 a day.

West Virginia.—The Chesapeake & Ohio has asked the Public Service Commission for permission to increase its passenger rates in that State, on the ground that the law fixing two cents a mile as the maximum is confiscatory.

LEGAL.

Mileage Books in New Hampshire.—The Attorney General at New Hampshire has filed in the Superior Court of that State a bill in equity in the name of the State of New Hampshire, asking the Court to issue a writ of mandamus to compel the Maine Central road to issue 500-mile mileage books and to place them on sale at all its stations.

The legislature at the recent session passed a law requiring all steam railroads operating a passenger service in the State to issue 500-mile mileage books at the rate of two cents per mile, good for the transportation of the bearer over all the steam railroad lines of the State and to keep them on sale at all ticket offices.

The road holds the law unconstitutional and has therefore refused to comply with it.

Illinois Central Sued by Mississippi. — The State of Mississippi has brought suit at Clarksville, Miss., against the Illinois Central and the Yazoo & Mississippi Valley Railroads, asking $50,000,000 in penalties for alleged violation of a law forbidding consolidation of parallel and competing lines of railroads, and demanding that the two roads be ordered to cease doing business in the State.

President Markham in discussing the case said he did not believe there was any cause for alarm. "The merger was declared to be valid in a tax suit some time ago. When the suit is tried I have no doubt we will be able to justify the coalition of those lines. The entire matter will be placed in the hands of our law department."

Minnesota Rate Injunctions Dismissed.— The United States Circuit Court at St. Paul has dismissed the injunctions relating to seven railways in Minnesota, and officially restored to effective operation the Minnesota two-cent passenger rate and commodities laws and cleared the way for consideration of the cases of the three roads not affected by the mandates of the United States' Supreme Court.

The roads affected in the injunctions are the Great Northern; Northern Pacific, Chicago, St. Paul, Minneapolis & Omaha; Chicago, Milwaukee & St. Paul; Chicago, Rock Island & Pacific; Chicago & Northwestern and the Soo Line.

The case of the Chicago Great Western was held not to be affected by the ruling of the higher court since its earnings have not been sufficient to warrant the enforcement of the two-cent rate.

The Minneapolis & St. Louis, in whose case the supreme court held the rates confiscatory, can change such rates as it desires to meet competition but is not compelled to make a refund. The Minnesota & International Railway Company will not be compelled to make a refund but will return to the two-cent rate.

Wilson Administration after Telephone Lines.—The first important suit under the Sherman anti-trust law by the Wilson Administration, has been filed at Portland, Ore. It is aimed at the American Telephone & Telegraph Company and its subsidiaries, known as the Bell companies. It is designed to bring about the dissolution of the so-called telephone mergers on the Pacific Coast, through which the Bell companies, it is charged, have established a monopoly of the telephone business in the states of Oregon, Washington, Montana and Idaho.

The Federal Government seeks to bring about the divorcement from the Bell companies of nine which formerly operated as independents and which it is charged, have been driven into an amalgamation with the Bell companies since 1905. These nine companies, formerly independent, represent investments of many millions of dollars.

Chesapeake and Ohio's Fare Petition Dismissed.—On motion of the Attorney General, the Circuit Court of West Virginia, has dismissed the bill of review filed by the Chesapeake & Ohio Railway Company, last month in the two-cent fare case. Under a former order of the court the railway company must redeem all coupons issued for fares collected in excess of two cents a mile on presentation at its offices in Charleston, Huntington and Hinton.

Anti-Trust Suit Against the Missouri, Kansas & Texas.—Judgment for $15,000,000 against the Missouri, Kansas and Texas Railroad, is asked and a suit filed in the District Court at Austin, Texas.

Violations of the Texas anti-trust laws is alleged. The Missouri, Kansas & Texas, of Kansas; the same organization in Texas; the Dallas, Cleburns & Southwestern Railroad Company; the Denison, Banham & New Orleans Railway, and the Texas Central Railway are made defendants.

The state charges that by its coalition with other roads, the Missouri, Kansas & Texas, of Kansas, has created a monopoly in Texas and has so routed passengers and freight as to compel their transportation over the controlled lines.

Power of California Commission over Security Issues Questioned.—The Southern Pacific Company, in a suit filed in the United States District Court at San Francisco, attacks the right of any single state to regulate the power of an interstate corporation to raise funds for disbursement in various states. The company seeks an injunction restraining the California Railroad Commission from asserting jurisdiction over a contemplated issue of equipment trust certificates

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aggregating $6,000,000 to be raised in New York and spent in several Western States.

The complaint contends that if the right is granted to any one State to declare void securities issued without the approval of that State's delegated agent, such right must be conceded to all States. Such a condition, it is held, would set up a conflict of authority which would make impossible any general plan of finance satisfactory to all Commissions.

The action was taken for the purpose of making a test case of it in order that a precedent might be established for future issues of securities. It is understood that the case will be carried to the highest court for decision so that the road may be in a position to know in the future just exactly where it stands with respect to the issuance of securities. It is also stated that the result of the court's findings will be an important element in connection with the future plans of the road as well as other important systems throughout the country.

Effort to Enjoin Iowa Commission.—An injunction has been sought by the Chicago, Rock Island and Pacific and the Chicago Great Western, representing all roads operating in Iowa, to prevent the State Railroad Commission from enforcing its orders that railroads should grant a rate of 1½ cents for the State Fair in August.

To Contest Validity of Illinois Headlight Act.—The validity of the Illinois headlight act is being tested in the courts at Danville, Ill. This law requires all railroads to place on their engines electric headlights of high power. This measure was backed strongly by the labor forces of the State. It was one of the few railroad measures to become a law.

It was attacked on the grounds that it is unconstitutional because Congress has the sole power to legislate concerning the equipment of locomotives doing an interstate business. Another basis for the injunction filed against it in the United States District Court here is that since it was to go into effect last week it would give insufficient time for railroads to equip with the new headlights.

The Louisville & Nashville Railroad, which filed the injunction preventing the enforcement of the law, alleged that it would take several months' time and a large expenditure of money to complete such equipment.

Union Pacific Loses Titles of Lands.—The Supreme Court of Colorado has reversed the decision of the District Court of Weld County, which had sustained the title of the Union Pacific Railroad Company to a strip of land 400 feet in width, and extending on both sides of its right of way. In its decision the Supreme Court said that while the District Judge stated the law correctly at the time his decision was made in 1909, according to the rulings in similar cases by the Federal Supreme Court, the Norris law, enacted by Congress, June 24th, 1912, is retroactive in cases where settlers and others have procured title to the land embraced within the right of way when the land previously had been abandoned, or had not been utilized by the railroad for the legal seven-year period of limitation.

Valuable lands located within the disputed strip in Colorado, Wyoming, Kansas and Nebraska are affected by the Norris law, and the decision of the Colorado Supreme Court is expected to establish a precedent for the settlement of similar cases in other States.

OBITUARY.

Francis Halsey Adams, formerly general storekeeper for the Chicago & North Western Ry., by which road he had been employed for more than forty years, died recently at his home in Chicago, at the age of 60.

Gordon A. Aird, who for twenty-five years was general agent of the Atchison, Topeka & Santa Fe Ry., died at his home in Chicago, July 15th.

Alexander Brown, signal engineer of the Chicago, Milwaukee & St. Paul Ry., died at his home in Milwaukee, July 7th.

G. H. Eaton, assistant master car builder of the Canadian Pacific Ry., died recently at his residence in Winnipeg, Man. Mr. Eaton has been connected with the mechanical department of the above railroad for many years, spending the last seven years in Winnipeg as assistant master car builder. Prior to 1906, he was stationed at Farnham, Que., as superintendent of the car shops at that point. Mr. Eaton, who was born in Stafford, England, was 53 years of age at the time of his death.

Edward S. Cramp, formerly vice-president of the William Cramp and Sons Ship Building Company, died in New York on June 20th. Mr. Cramp was born in Philadelphia in March, 1853. His father and his grand-father, William Cramp, founder of the ship yards, were also born in Philadelphia. Mr. Cramp graduated from the Central High School of Philadelphia, in 1871, and in September of the same year, he was apprenticed to the engineering branch of Cramp and Company, and began work at the bottom. After serving four years in this branch, he became an expert machinist and leaving the machine shop went to the draughtsman table, where for seven years he drew plans and worked over the details of the big vessels which the company were then commencing to build. After seven years' training in the draughting department, Mr. Cramp was placed in charge of the erecting department. He was then made superintendent of the plant, and from this position he rapidly rose to general manager of the entire ship yard and then to the position of vice-president. He retired from active business a few years ago and moved to New York.

Mr. Cramp was a member of the Union League, Rittenhouse Club, Art Club, Country Club, the Metropolitan Club of Washington. He was also a member of the American Academy of Social Science, the American Society of Engineers and the Naval Architects.

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Thomas J. Fitzgerald, formerly resident engineer of the Southern Pacific at Ogden, Utah, died in that city on June 24th, aged 67 years. Mr. Fitzgerald was connected with the Central Pacific and Southern Pacific from October, 1868, until about January, 1912, when he retired owing to ill health and was placed on the pension list of that company.

John Heimrich, president of the Great Southern R. R., died at his home in Portland, Ore., June 11th, aged 67 years.

David S. Hill, formerly from April, 1882, to February, 1900, general superintendent of the Lake Erie & Western at Indianapolis, Ind., died on July 1st, at Detroit, Mich., aged 72 years. Mr. Hill began railway work in 1858, and filled various minor positions with the Michigan Central and Louisville, New Albany & Chicago until September, 1871, when he became assistant superintendent of construction of the Cincinnati, Lafayette & Chicago. Later he was trainmaster and superintendent of the Lafayette, Bloomington & Muncie until April, 1880, when he was made division superintendent of the Lake Erie & Western. In April, 1882, he was promoted to general superintendent, which position he held until February, 1900, when he was appointed assistant chief engineer of that road. He retired from active railway service in January, 1901.

James C. Haugh, resident engineer of the New Orleans & Northeastern R. R., was killed in an automobile accident at New Orleans, La., Sunday, July 6th. Mr. Haugh was born in Cincinnati, O., in 1855 and was connected with the city engineer's office for a short time. He later became identified with the Cincinnati Southern Ry., and was engaged in the construction of that road. When it was taken over by the Cincinnati, New Orleans & Texas Pacific, he was transferred to the New Orleans & Northeastern. He supervised the construction of the six-mile railroad bridge over Lake Pontchartrain, near New Orleans, and was president of the Engineers' Club of Louisiana.

Edwin Tracy Jones, auditor of revenue of the Southern Railway, with headquarters at Washington, D. C., died in that city on June 16th. He was born at Decatur, Ala., and was educated in the public schools of his native town. He began railway work at the age of 16, as a messenger on the Memphis & Charleston, now a part of the Southern, and then to 1885 held various clerical positions, including that of ticket agent. In 1885 he was in the local office of the same road at Memphis, Tenn., and subsequently was chief clerk and cashier of the Chesapeake & Ohio Southwestern at Memphis, returning to the service of the Memphis & Charleston in 1888, as assistant agent at Decatur, Ala. The following year he entered the auditor's office of the same road at Memphis, and then to 1895 was consecutively cashier of the Louisville, New Orleans & Texas, now a part of the Yazoo & Mississippi Valley, and agent of the Tennessee Midland, now a part of the Nashville, Chattanooga & St. Louis, at Memphis. From 1895 to 1898, he was with the Mallory Steamship Company at Galveston, Tex., and in October of the latter year, was made a clerk in the freight auditor's office of the Southern Railway. In June, 1901, he was appointed auditor of freight accounts, and since July, 1904, was auditor of revenue of the same road. Mr. Jones was in good part responsible for the unusually efficient organization of the Southern Railway auditor of revenue's office.

W. J. Maxwell, grand secretary and treasurer of the Order of Railway Conductors, died at his home in Cedar Rapids, Iowa, on July 14th. He was 54 years old, and had occupied his position with the Conductors' Order for fifteen years.

Paul R. MacKinnon, traveling passenger agent of the Chicago, Rock Island & Pacific at Denver, Colo., died recently at that place.

William K. McAllister, general agent of the Southern Pacific at Denver, Colo., died in that city on June 12th, aged 63 years. Mr. McAllister had been connected with the Southern Pacific since 1893, and was made general agent in March, 1895.

G. McRoberts, division foreman of the St. Louis & San Francisco at Salem, Mo., died on July 10th, aged 56 years.

E. W. Moore, superintendent of the St. Louis division of the Mobile & Ohio, with headquarters at Murphysboro, Ill., died in the latter city on June 17th. Mr. Moore was born in 1862 at Keokuk, Iowa, and began railway work in 1877 as brakeman on the Keokuk & Des Moines Valley. He was subsequently until October, 1890, brakeman and conductor on the Cairo & St. Louis and the Mobile & Ohio. From the latter date to August, 1902, he was trainmaster of the St. Louis division of the Mobile & Ohio, and was then made superintendent of that division.

Gavinus McReynolds, age 56 years, for 32 years in railroad service, first with the Vandalia and then with the Texas Pacific, and for the past eleven years master mechanic of the Frisco's Salem branch, died on July 11th.

Daniel S. Newhall, purchasing agent of the Pennsylvania Railroad, who died on July 12, 1913, was born in Germantown, Pa., April 7, 1849, and was educated in private schools. After taking a course in the chemical laboratories of Messrs. Booth & Garrett and Prof. F. A. Genth, he began his business career as an apprentice in the Pennsylvania Sugar Refinery, at Race and Crown Streets, Philadelphia, of which he was superintendent at the time of its destruction by fire in 1870.

Mr. Newhall continued in the sugar refining business, from 1870 to February 1882, and was a member of the firm of McKean, Newhall & Borie, at the old Lovering Refinery, Church Alley. On February 21, 1882, he was elected assistant secretary of The Pennsylvania Railroad Company. He was superintendent of the Employes' Saving Fund from the date of its organization in 1887; secretary of the Manor Real Estate and Trust Company; assistant secretary of the Philadelphia, Wilmington and Baltimore Railroad Junction Railroad and Philadelphia and Baltimore Central Railroad Companies.

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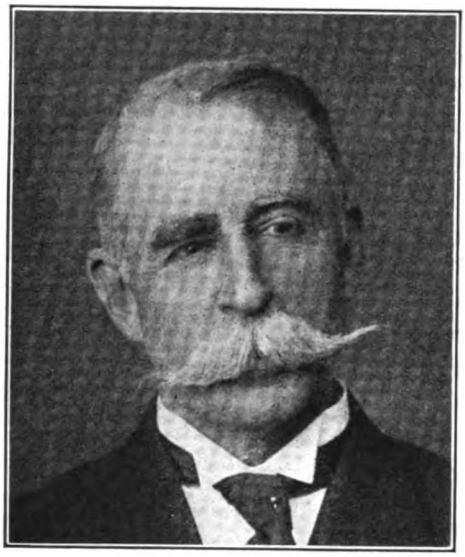
On June 1, 1898, Mr. Newhall was appointed purchasing agent of the company, on the death of Mr. A. W. Sumner.



DANIEL S. NEWHALL.

Walter T. Payne, foreign freight agent of the Norfolk and Western Railway, died in Norfolk, Va., on June 7th. Mr. Payne was the oldest official of that company by seniority of service, having been in its employ for forty-seven consecutive years.

M. J. Power, general storekeeper of the Canadian Pacific Ry., eastern lines, died recently at the Royal Victoria hospital in Montreal. Prior to becoming general storekeeper, Mr. Power was for twelve years, chief clerk to Sir Thomas Shaughnessy, the president of the road. Mr. A. A. Goodchild has been acting as general storekeeper, during the illness of Mr. Power and will probably succeed to the position.

Henry F. Rice, a former general superintendent of the Chicago, Rock Island & Pacific Ry., died at his home in Des Moines, Iowa, June 7th.

Dr. William Taussig, president of the St. Louis Bridge Company, director of the St. Louis Union Trust Company and organizer and former president of the Terminal Railroad Association of St. Louis, died on July 10th, of pneumonia, after an illness of several weeks, at his home in St. Louis, Mo., at the age of 87. He was born in Bohemia and was graduated from the University of Prague in 1844. He came to St. Louis a year later and was graduated in 1850 from the St. Louis School of Medicine. He was an active practitioner for thirteen years. In 1852 he was elected mayor of Carondelet. He served as judge of the St. Louis County Court from 1859 to 1865 and from 1863 to 1865 was the presiding judge. In 1866 he became president of the Traders' Bank. He was one of the organizers of the St. Louis Bridge Company, which built the Eads bridge, and of the Terminal Railroad Company. He was president of the Terminal Railroad Association from its organization in 1889, until 1896.

J. H. Taylor, general superintendent of the Lake district of the Great Northern Ry., with headquarters at Superior, Wis., died at his home in that city, July 14th. Mr. Taylor was born at Hancock, N. Y., September 15, 1865. He entered railway service in 1879. After holding various positions with several lines and previous to going to Superior with the Erie R. R., last as superintendent of the Delaware division at Port Jarvis, N. Y., he went to the Great Northern as superintendent of the Mesabe & Superior division at Superior, November, 1904. Mr. Taylor had been general superintendent of the Lake district since March 15, 1912, having just previously held the same position at Great Falls, Mont., the headquarters of the Central district of the Great Northern.

Henry Martin Thompson, one of the first three railroad commissioners of the State of New York, died on Monday, July 14th, at his home in New York at the age of 71.

Henry Wilkes Walker, retired general auditor of the Grand Trunk Ry., died in Winnipeg, Man., June 10th, aged 74 years.

Herman Wheeler, retired, but formerly assistant general passenger agent, Chicago & Northwestern Ry., for a time general agent at Denver, Colo., and, in later years, because of ill health, assistant general agent of the same road at Denver, died recently in New York.

ELECTIONS AND APPOINTMENTS.

Executive.

Frank Andrews, receiver, St. Louis, Brownsville & Mexico Railroad.

W. T. Armstrong, president, Texas City Terminal Company.

B. S. Barker, vice-president and general manager, Gainesville & Northwestern Railroad. Headquarters, Gainesville, Ga.

E. L. Brown, vice-president, Western Pacific. Headquarters, San Francisco, Cal.

Benjamin F. Bush, president, Western Pacific Railroad.

Lewis L. Clarke, director, Hudson & Manhattan Railroad

A. J. County, director, Philadelphia, Baltimore & Washington R. R.

George W. Davison, director, Hudson & Manhattan Railroad.

Roy Dillon, vice-president and general manager, Texas City Terminal Company.

D. C. Douglass, assistant to the president, Maine Central Railroad.

Pliny Fisk, director, Hudson & Manhattan Railroad Co.

R. J. Foreman, assistant to the vice-president, Grand Trunk Railway. Headquarters, Montreal, Que.

Elbert H. Gary, director, Hudson & Manhattan Railroad Co.

Jerome I. Hanauer, director, Hudson & Manhattan Railroad Co.

Alexander J. Hemphill, director, Hudson & Manhattan R. R.

Edward T. Jeffery, chairman of the board, Western Pacific.

Felix Johnson, vice-president, Houston & Bra-

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zos Valley Railroad. Headquarters, Freeport, Texas.

Fred. M. Kirby, member of board, Lehigh Valley Railroad Co.

Morris McDonald, president, Boston & Maine and Maine Central Railroads.

R. W. Meirs, director, Hudson & Manhattan Railroad.

Frank J. Moore, president, American Association of General Baggage Agents.

W. C. Nixon, receiver, St. Louis & San Francisco Railroad. Headquarters, St. Louis, Mo.

W. G. Oakman, director, Hudson & Manhattan Railroad.

J. M. Parker, receiver, Arkansas, Louisiana & Gulf Ry.

J. W. Platten, director, Hudson & Manhattan Railroad.

G. H. Schleyer, receiver, St. Louis, San Francisco & Texas Railroad.

Dan D. Schrenck, president, Toledo & Indiana Railroad. Headquarters, Toledo, Ohio.

Charles R. Thompson, assistant to first vice-president, Texas & Pacific Railway. Headquarters, New Orleans, La.

Avery Turner, receiver, St. Louis, San Francisco & Texas Railroad. Headquarters, Amarillo, Texas.

Lucius Tuttle, chairman of the board, Boston & Maine Railroad.

J. Q. Van Winkle, assistant to vice-president Bernet, Cleveland, Cincinnati, Chicago & St. Louis. Headquarters, Cincinnati, Ohio.

W. H. Williams, director, Hudson & Manhattan Railroad.

Legal.

Edward W. Beatty, general council, Canadian Pacific Railway. Headquarters, Montreal, Que.

E. H. Boles, general solicitor, Lehigh Valley Railroad. Headquarters, New York.

Henry C. Hall, attorney, Arkansas, Louisiana & Gulf. Headquarters, Colorado Springs, Colo.

Edson Rich, assistant general solicitor, Union Pacific. Headquarters, Omaha, Neb.

Financial.

L. G. Burress, paymaster, Chesapeake & Ohio Railroad. Headquarters, Richmond, Va.

E. R. Cobb, secretary, Houston & Brazos Valley Railroad. Headquarters, Freeport, Texas.

J. P. Finkenaur, secretary, American Refrigerator Transit Company.

H. E. Fisher, treasurer, Boston & Maine Railroad.

J. A. Hancock, assistant treasurer, Chesapeake & Ohio. Headquarters, Richmond, Va.

T. D. Heed, assistant treasurer for the receivers, Chicago & Eastern Illinois Railroad. Headquarters, New York City.

J. F. Meyers, assistant treasurer, Oregon-Washington Railroad and Navigation Company. Headquarters, Portland, Oregon.

George C. Morris, treasurer, Houston & Brazos Valley Railroad. Headquarters, Freeport, Texas.

J. H. Weaver, treasurer, Western Virginia Northern Railroad.

J. E. Wilkinson, assistant treasurer, Western Virginia Northern Railroad.

Accounting.

W. H. Burns, general auditor, Malvern & Camden Ry. Headquarters, Chicago.

B. J. Corson, auditor and freight claim agent, A. L. & G. Ry. Headquarters, Monroe, La.

J. B. Duke, auditor of revenue, Southern Railway. Headquarters, Washington, D. C.

Arthur P. Foss, comptroller, Maine Central. Headquarters, Portland, Me.

L. E. Hodson, assistant freight auditor, Minneapolis, St. Paul and Sault Ste. Marie. Headquarters, Minneapolis, Minn.

T. C. McCampbell, acting auditor and acting treasurer, Tennessee, Kentucky & Northern Railway. Headquarters, Nashville, Tenn.

J. J. McEwen, Jr., auditor of disbursements, Missouri, Kansas & Texas Railway of Texas. Headquarters, Dallas, Texas.

J. E. O'Neill, auditor, Galveston, Houston & Henderson Railroad.

T. L. Shelton, auditor of station accounts, Southern Railway. Headquarters, Washington, D. C.

Engineering and Mechanical.

J. W. Acker, gang foreman, Rock Island's Cedar Rapids roundhouse.

P. E. Anderson, roadmaster, Walla Walla and Pendleton branches, Northern Pacific. Headquarters, Pasco, Wash.

A. G. Andrew, assistant supervisor, division No. 30, Pennsylvania Railroad. Headquarters, Barnesboro, Pa.

A. G. Armstrong, master mechanic, Arizona division, Atchison, Topeka & Santa Fe Ry. Headquarters, Los Angeles, Cal.

T. N. Armstrong, road foreman, engines, Chesapeake & Ohio Railroad. Headquarters, Lexington, Ky.

J. F. Ashworth, master mechanic, Tennessee Valley. Headquarters, Oneida, Tenn.

Lee Barnes, assistant roadmaster, St. Paul division, the Northern Pacific.

Henry Barnett, general mechanical superintendent in charge of shops, rolling stock and machinery, Boston & Maine Railroad.

E. S. Barnum, general foreman, Pennsylvania Lines west of Pittsburgh. Headquarters, Xenia, Ohio.

M. K. Barnum, general mechanical inspector, Baltimore & Ohio.

F. D. Batchellor, district engineer, maintenance of way, the Cincinnati, Hamilton & Dayton Railway.

R. A. Becket, superintendent of signals, Grand Trunk Railway. Headquarters, Montreal, Que.

R. A. Bellingham, master mechanic, Apalachicola Northern. Headquarters, Ft. St. Joe, Fla.

B. A. Bertenshaw, district engineer, construction department, Cleveland, Cincinnati, Chicago & St. Louis Ry. Headquarters, Middletown, Ohio.

O. S. Beyer, Jr., general foreman, Chicago, Rock Island & Pacific Railway. Headquarters, Horton, Kansas.

William Bibby, assistant general roadmaster, Central Vermont Railroad. Headquarters, St. Albans, Vt.

W. A. Rizor, foreman of water service, Chicago, Burlington & Quincy R. R. Headquarters, Greybull, Wyo.

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F. S. Robbins, assistant master mechanic, Pittsburgh division, Pennsylvania Railroad. Headquarters, Pittsburgh, Pa.

J. J. Romkine, locomotive foreman, Inverness Railway & Coal Company. Inverness, N. S.

R. C. Ross, acting master mechanic, Vera Cruz Terminal. Headquarters, Vera Cruz, V. C.

S. V. Rowland, train master, northern division, Chicago Great Western Railroad. Headquarters, St. Paul, Minn.

H. H. Russell, engineer, Middle division, Pennsylvania Railroad. Headquarters, Altoona, Pa.

P. Ryan, roundhouse foreman, Intercolonial Railway of Canada. Headquarters, Chaudiere Jct., Que.

E. D. Sabine, terminal engineer, Grand Central Terminal, New York Central & Hudson River R. R. Headquarters, New York.

R. B. Salmons, master mechanic, Cincinnati terminals and Kentucky division, Louisville & Nashville Railroad. Headquarters, Covington, Ky.

F. S. Schorndorfer, general foreman of shops, Baltimore & Ohio Southwestern. Headquarters, Chillicothe, Ohio.

H. C. Oviatt, assistant mechanical superintendent, New York, New Haven & Hartford R. R. Headquarters, New Haven, Conn.

F. O. Peoples, master mechanic, Ohio River & Western Ry. Headquarters, Zanesville, Ohio.

H. A. Phelps, division engineer, Southern New England Railway. Headquarters, Providence, R. I.

Joseph Pollock, master mechanic, Jefferson & Northwestern Ry. Headquarters, Jefferson, Tex.

C. D. Porter, assistant to the general superintendent of motive power, the Pennsylvania Railroad. Headquarters, Altoona, Pa.

R. Q. Prendergast, mechanical superintendent, Bangor & Aroostook Railroad. Headquarters, Milo Junction, Maine.

R. D. Purvis, trainmaster, Georgia & Florida Railroad. Headquarters, Douglas, Fla.

J. A. Read, general foreman, locomotive department, Georgia Southern & Florida. Headquarters, Macon, Ga.

Herbert Reid, locomotive foreman, Canadian Pacific. Headquarters, St. Ignace, Mich.

C. J. Rist, assistant engineer, maintenance of way, Pere Marquette. Headquarters, Detroit, Mich.

A. B. Moore, division storekeeper, First division, Oregon-Washington Railroad & Navigation Company. Headquarters, Portland, Oregon.

H. J. Moore, division engineer, Oklahoma division, Atchison, Topeka & Santa Fe Railroad. Headquarters, Arkansas City, Kan.

C. A. Morse, chief engineer, Malvern and Camden Railway Company.

W. L. Morse, chief engineer, Jacksonville Terminal Company. Headquarters, Jacksonville, Fla.

H. E. Myers, shop superintendent, Lehigh Valley shops. Headquarters, Packerton, Pa.

Michael Nash, master mechanic, Bangor and Aroostook R. R. Headquarters, Milo Jct., Me.

F. S. Nelson, valuation commissioner, Chesapeake & Ohio Railroad.

W. M. O'Laughlin, supervisor of signals, Northern Pacific Railway. Headquarters, St. Paul, Minn.

J. W. Orrock, principal assistant engineer, Canadian Pacific Ry. Headquarters, Montreal, Que.

H. J. Osborne, superintendent of motive power, South Dakota Central. Headquarters, Sioux Falls, S. D.

J. T. Langley, assistant superintendent of motive power, Oregon-Washington Railroad & Navigation Company. Headquarters, Portland, Oregon.

Wm. H. Leonard, storekeeper, Philadelphia & Reading R. R. Headquarters, Fort Reading, N. J.

P. Linthicum, assistant superintendent of shops, Chicago, Rock Island & Pacific Railway. Headquarters, Silvis, Ill.

H. L. Lyon, division engineer, second division, Oregon-Washington Railroad & Navigation Company. Headquarters, LaGrande, Oregon.

P. McGuire, assistant roadmaster, Minnesota division, Northern Pacific. Headquarters, Staples, Minn.

J. E. McLean, master mechanic, Kansas City Southern. Headquarters, Pittsburgh, Kansas.

T. H. McLeod, master mechanic, Canadian Northern. Headquarters, Perry Sound, Ont.

C. E. Magee, master mechanic, Gulf & Sabine River Ry. Headquarters, Fullerton, La.

S. R. Mathes, general foreman, Atlanta, Birmingham & Atlantic shops. Headquarters, Manchester, Ga.

W. N. Mitchell, in charge of the education of firemen in the use of locomotive fuel, the Chicago Great Western Railway.

D. E. Moodie, division storekeeper, Mobile & Ohio Railroad. Headquarters, Meridian, Miss.

R. H. Hellicfi, assistant supervisor, Bellwood division, Pennsylvania Railroad.

J. R. Holman, chief engineer, Oregon-Washington Railroad & Navigation Company. Headquarters, Seattle, Wash.

G. A. Hull, acting assistant mechanical engineer, Chicago, Rock Island & Pacific. Headquarters, Silvis, Ill.

F. A. Hussey, road foreman of engines, Boston division, Boston & Albany. Headquarters, Beacon Park, Mass.

Frank T. Hyndman, superintendent motive power, Wheeling & Lake Erie Railroad. Headquarters, Cleveland, Ohio.

H. C. Johnson, division engineer, Michigan division, Vandalia Railroad. Headquarters, Logansport, Ind.

F. H. Judd, resident engineer, Grand Central Terminal, New York Central and Hudson River R. R. Headquarters, New York.

Thomas B. Kennedy, engineer, Cumberland Valley Railroad. Headquarters, Cumberland, Pa.

W. C. Kline, division engineer, Western Maryland. Headquarters, Cumberland, Md.

H. G. Kock, locomotive foreman, Great Northern. Headquarters, Butte, Mont.

R. B. Kries, road foreman of engines, Western Pacific. Headquarters, Elko, Nev.

M. H. Farrell, shop foreman, Western Allegheny. Headquarters, Kayler, Pa.

E. Fuller, master mechanic, Augusta Southern. Headquarters, Charleston, S. C.

A. A. Goodchild, general storekeeper, lines east of Ft. William, Canadian Pacific Railway. Headquarters, Montreal, Que.

William F. M. Goss, chief engineer, Chicago Association of Commerce Committee on smoke abatement and electrification of terminals.

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J. F. Graham, superintendent of motive power, Oregon-Washington Railroad & Navigation Company. Headquarters, Portland, Ore.

J. H. Green, master mechanic, Halifax & Southwestern. Headquarters, Bridgewater, N. S.

F. L. Guy, division engineer, Eastern division, Atchison, Topeka & Santa Fe. Headquarters, Emporia, Kansas.

Charles Hansel, consulting valuation engineer, Pennsylvania Railroad.

J. M. Harris, division engineer, Western Maryland. Headquarters, Hagerstown, Md.

H. J. Heilig, road foreman of engineers, Southern Railway. Headquarters, Greensboro, N. C.

W. L. Cooper, division storekeeper, Mobile & Ohio. Headquarters, Jackson, Tenn.

A. B. Corthell, chief engineer in charge of construction and maintenance, Boston & Maine Railroad.

P. H. Cosgrove, general car foreman, Oregon Short Line R. R. Headquarters, Salt Lake City, Utah.

J. L. Cunningham, master mechanic, Maryland division, Pennsylvania Railroad.

C. B. Daily, master mechanic, Cedar Rapids division, Chicago, Rock Island & Pacific Ry. Headquarters, Cedar Rapids, Iowa.

W. H. Davis, roundhouse foreman, Texas & New Orleans R. R. Headquarters, Echo, Texas.

E. B. Dehart, roadmaster, Colorado division, Atchison, Topeka & Santa Fe Railroad. Headquarters, Pueblo, Colo.

H. B. Dick, district engineer, maintenance of way, the Baltimore & Ohio Southwestern R. R.

G. H. Dryden, principal assistant signal engineer, Baltimore & Ohio Railroad. Headquarters, Baltimore, Md.

P. T. Dunlop, general superintendent, motive power, St. Louis & San Francisco. Headquarters, Springfield, Mo.

D. T. Easby, division engineer, Allegheny division, Pennsylvania Railroad. Headquarters, Oil City, Pa.

W. L. Elkin, division engineer, St. Louis division, Vandalia Railroad. Headquarters, Terre Haute, Ind.

A. S. Bland, division engineer, Peoria division, the Vandalia Railroad. Headquarters, Decatur, Ill.

Clarence C. Blood, roadmaster, Puget Sound division, Great Northern Railway. Headquarters, Seattle, Wash.

G. W. Boschke, chief engineer, Oregon-Washington Railroad & Navigation Company. Headquarters, Portland, Ore.

A. C. Breisch, master mechanic, Chicago, Rock Island & Pacific. Headquarters, Armourdale, Kansas.

C. E. Brinser, division engineer, West Jersey & Sea Shore R. R. Headquarters, Camden, N. J.

Collingwood B. Brown, chief engineer, Intercolonial and Prince Edward Island Railways. Headquarters, Moncton, N. B.

C. L. Bunch, general foreman, Southern Railway. Headquarters, Spencer, N. C.

F. S. Cabell, valuation commissioner, Chesapeake & Ohio Railroad.

G. C. Chittendon, roadmaster, First sub-division, Northern Pacific Ry. Headquarters, Pasco.

P. J. Clark, superintendent of motive power, Georgia, Florida & Alabama Ry. Headquarters, Bainbridge, Ga.

R. A. Cook, commissioner of the valuation of assets, Chicago and Alton.

J. N. Weaver, road foreman of engines, Baltimore and Ohio. Headquarters, New Castle Jct., Penna.

O. West, acting roadmaster, Western division, Atchison, Topeka & Santa Fe Railroad. Headquarters, Dodge City, Kansas.

G. F. Wieseckel, master mechanic, middle and eastern divisions, Western Maryland Railway.

William D. Wiggins, valuation engineer, Pennsylvania Lines, west of Pittsburgh. Headquarters, Pittsburgh, Pa.

F. W. Williams, master mechanic, Minnesota division, Chicago, Rock Island & Pacific Railway. Headquarters, Manly, Iowa.

L. E. Wingfield, master mechanic, Arkansas Central. Headquarters, Pan's, Arkansas.

R. O. Woods, division storekeeper, Mobile & Ohio Railroad. Headquarters, Murphysboro, Ill.

C. E. Zortman, division engineer, Conemaugh division, Pennsylvania Railroad. Headquarters, Pittsburgh, Pa.

T. J. Stillman, division engineer, New York, Philadelphia & Norfolk Railroad. Headquarters, Cape Charles, Va.

John Sutherland, master mechanic, Iowa & Illinois Railway. Headquarters, Clinton, Iowa.

J. T. Tadlock, master mechanic, A. L. & G. Headquarters, Monroe, La.

R. W. Taylor, assistant signal engineer, Baltimore & Ohio Railroad. Headquarters, Baltimore, Md.

A. S. Teague, master mechanic, Denver & Rio Grande. Headquarters, Helper, Utah.

E. M. Thomas, valuation commissioner, Chesapeake & Ohio Railroad.

J. H. Thomas, assistant general foreman, Pennsylvania Railroad. Headquarters, Pitcairn, Pa.

John H. Tinker, superintendent of motive power and machinery, Chicago & Eastern Illinois. Headquarters, Danville, Ill.

W. R. Trowbridge, supervisor, Trenton division, Pennsylvania Railroad.

H. R. Warnock, master mechanic, the Monongahela. Headquarters, South Brownsville, Pa.

W. H. Scribner, supervisor, mechanical examinations, Lake Shore & Michigan Southern Railway. Headquarters, Cleveland, Ohio.

T. J. Skillman, division engineer, New York, Philadelphia & Norfolk R. R. Headquarters, Cape Charles, Va.

William B. Skipworth, general foreman, Southern Railway. Headquarters, Columbus, Ga.

Wm. H. Sloat, master mechanic, Dayton & Union. Headquarters, Dayton, Ohio.

C. E. Smith, assistant chief engineer, Missouri Pacific system. Headquarters, St. Louis, Mo.

F. W. Smith, Jr., engineer, New York division, Pennsylvania Railroad. Headquarters, Jersey City, N. J.

H. H. Smith, car service agent, Canadian Northern. Headquarters, Montreal, Que.

Joseph Smith, roadmaster, Second district, Northern Pacific. Headquarters, Duluth, Minn.

W. F. Steffens, chief engineer, Chesapeake & Ohio Railroad.

William Stiles, roadmaster, Missouri Kansas & Texas Ry. Headquarters, Atoka, Okla.

Operation.

Harry D. Mudget, trainmaster, Montana division, Northern Pacific. Headquarters, Livingston, Mont.

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Joseph H. Nash, superintendent motive power, Illinois Central Railroad.

A. D. Nichols, superintendent of transportation, Arkansas, Louisiana & Gulf. Headquarters, Monroe, La.

F. O'Brien, superintendent, St. Louis, Peoria & Northwestern. Headquarters, Chicago.

George E. Patterson, superintendent, Springfield division, Illinois Central Railroad. Headquarters, Clinton, Ill.

E. M. Payne, superintendent, Manitoba division, Canadian Pacific Railway. Headquarters, Winnipeg, Man.

P. N. Place, superintendent, Delaware, Lackawanna & Western Railroad. Headquarters, Scranton, Pa.

F. M. Pratt, superintendent, Illinois division, Chicago, Rock Island & Pacific Railway.

Albert Price, general manager, Eastern lines, Canadian Pacific Railway.

C. W. McCoppin, general manager, Riviera Beach & Western. Headquarters, Riviera, Tex.

John McCraw, superintendent, southern division, Central Vermont. Headquarters, New London, Conn.

C. J. McDonald, assistant superintendent, first division, Houston & Texas Central. Headquarters, Austin, Texas.

F. McIntosh, inspector of passenger transportation, Chicago & Alton Railroad. Headquarters, Chicago.

John McMillan, general superintendent of telegraph of lines west of Ft. William, Canadian Pacific Railway. Headquarters, Winnipeg, Man.

J. D. Matheson, assistant superintendent, First division, Oregon-Washington Railroad & Navigation Company. Headquarters, Portland, Oregon.

A. C. Maxwell, general manager, Midland Continental Railroad. Headquarters, Jamestown, N. D.

William M. Mitchell, fuel supervisor, Chicago Great Western Railway. Headquarters, Chicago.

S. A. Morrison, assistant superintendent, Wisconsin division, Chicago & North Western.

George P. Johnson, general manager, Chesapeake & Ohio Railroad. Headquarters, Richmond, Va.

Kepler Johnson, trainmaster, third district, Indiana Territory division, Rock Island Lines. Headquarters, Haileyville, Okla.

H. E. Jones, superintendent, Denver, Northwestern & Pacific Ry.

J. R. Jones, trainmaster, International & Great Northern. Headquarters, San Antonio, Texas.

J. V. Kennedy, superintendent, Cleveland-Indianapolis division, Cleveland, Cincinnati, Chicago & St. Louis Ry. Headquarters, Cleveland, Ohio.

J. T. King, general superintendent of transportation, Atlantic Coast Line. Headquarters, Wilmington, N. C.

E. A. Klippel, superintendent of telegraph, Oregon-Washington Railroad & Navigation Company. Headquarters, Portland, Ore.

E. S. Koller, assistant general manager, the Burlington. Headquarters, Omaha, Neb.

H. E. Lewis, passenger trainmaster, steam lines, Long Island Railroad.

J. P. Lynahan, superintendent, Gulf, Florida & Alabama R. R. Headquarters, Pensacola, Fla.

J. J. McCarty, commercial agent, A. P. & A. Railway. Headquarters, Cincinnati, Ohio.

B. B. Greer, general manager, the Burlington. Headquarters, Chicago, Ill.

W. H. Guild, assistant superintendent, First division, Oregon-Washington Railroad & Navigation Company. Headquarters, Portland, Oregon.

William P. Hawkins, assistant fuel agent, Missouri Pacific and the St. Louis, Iron Mountain & Southern. Headquarters, St. Louis.

T. J. Hayes, superintendent of terminals, Cleveland, Cincinnati, Chicago & St. Louis Railway. Headquarters, Cincinnati, Ohio.

S. A. Hering, car service agent, Oregon-Washington Railroad & Navigation Company. Headquarters, Portland, Oregon.

Joseph W. Hevron, trainmaster, Chicago, Bloomington, Pontiac and Tracy districts, Illinois Central R. R. Headquarters, Kankakee, Ill.

J. A. Hillis, assistant superintendent, Ft. Worth sub-division, Texas and Pacific Railroad. Headquarters, Baird, Texas.

George S. Hobbs, general manager, Maine Central, in charge of all operations. Headquarters, Portland, Me.

W. H. Homan, assistant superintendent, the Baird, Big Spring and Toyah sub-divisions, Texas & Pacific Railroad. Headquarters, Big Spring, Texas.

W. M. Jackle, assistant superintendent, First division, Oregon-Washington Railroad & Navigation Company. Headquarters, Portland, Oregon.

Edward Cox, assistant district superintendent, Pullman Car Company. Headquarters, Detroit, Mich.

L. M. Davis, trainmaster, Chicago & Northwestern Ry. Headquarters, Chicago, Ill.

J. S. Douglas, chief despatcher, Atlanta, Birmingham & Atlantic. Headquarters, Manchester, Ga.

Lawrence A. Downs, superintendent, Minnesota division, Illinois Central Railroad. Headquarters, Dubuque, Iowa.

W. E. Dozier, general superintendent and chief engineer, the Temple, Northwestern & Gulf Railway. Headquarters, Temple, Texas.

D. England, trainmaster, Canadian Pacific Railway. Headquarters, Winnipeg, Que.

J. E. Epler, assistant to general manager in charge of maintenance of equipment, Chicago & Alton. Headquarters, Chicago, Ill.

E. R. Glidden, superintendent, Evansville division, Chicago & Alton. Headquarters, Evansville, Ind.

B. B. Green, general manager, Chicago, Burlington & Quincy R. R. Headquarters, Chicago, Illinois.

M. J. Buckley, general superintendent, Oregon-Washington R. R. & Navigation Company. Headquarters, Portland, Oregon.

B. C. Byers, superintendent, Cincinnati Northern. Headquarters, Van Wert, Ohio.

W. A. Card, superintendent, St. Joseph division, Chicago, Burlington & Quincy Railroad. Headquarters, St. Joseph, Mo.

A. J. Carter, assistant superintendent, Aurora division, the Burlington. Headquarters, Aurora, Illinois.

John E. Church, trainmaster, Delaware, Lackawanna & Western. Headquarters, Port Morris, N. J.

R. E. Clark, superintendent of car service, Texas and Louisiana Lines. Headquarters, Houston, Texas.

James T. Colbert, superintendent of car serv-

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ice, Pittsburgh, Shawmut & Northern. Headquarters, St. Marys, Pa.

R. Colclough, superintendent, Montreal and Ste. Flavie district, Intercolonial Railway. Headquarters, Levis, Que.

E. M. Costin, assistant general superintendent, Cleveland, Cincinnati, Chicago & St. Louis Ry. Headquarters, Indianapolis, Ind.

L. E. Abbott, safety commissioner, Oregon Short Line. Headquarters, Salt Lake City, Utah.

N. C. Allen, superintendent, Creston division, Chicago, Burlington & Quincy Railroad. Headquarters, Creston, Iowa.

C. D. Baker, trainmaster, electrified lines of the Long Island. Headquarters, Jamaica, N. Y.

R. N. Begien, general superintendent, Baltimore & Ohio Southwestern. Headquarters, Cincinnati, Ohio.

H. C. Bell, general manager, Detroit, Toledo & Ironton Railway. Headquarters, Detroit, Mich.

J. O. Bell, superintendent, Illinois division, Chicago & Alton. Headquarters, Salem, Ill.

W. F. Berger, assistant superintendent, Houston, Waco & Lockhart divisions, of the San Antonio & Aransas Pass Ry.

W. Bollons, superintendent, Second division, Oregon-Washington Railroad & Navigation Co. Headquarters, LaGrande, Ore.

Charles Boertman, superintendent, Pere Marquette shops. Headquarters, Saginaw, Mich.

J. L. Brass, assistant to general manager, Oregon-Washington Railroad & Navigation Company. Headquarters, Seattle, Wash.

C. H. Risley, passenger trainmaster, electrified lines, Long Island.

R. K. Rochester, superintendent, Peoria division, the Vandalia. Headquarters, Decatur, Ill.

S. V. Rowland, trainmaster, Northern division, Chicago Great Western R. R. Headquarters, St. Paul, Minn.

J. W. Sheahan, superintendent, Colorado Springs division, Chicago, Rock Island & Pacific Railway.

W. F. Sheridan, assistant superintendent, transportation, Louisville & Nashville Railway. Headquarters, Louisville, Ky.

Paul Shoup, in charge of operation, Oakland, Alameda and Berkeley suburban lines.

H. H. Smith, car service agent, Canadian Northern. Headquarters, Montreal, Que.

T. G. Smith, superintendent, Houston & Brazos Valley Ry. Headquarters, Freeport, Texas.

J. D. Stack, superintendent, first division, Oregon-Washington Railroad & Navigation Company. Headquarters, Portland, Ore.

A. E. Stevens, general superintendent, Alberta division, Canadian Pacific Railway. Headquarters, Calgary, Alta.

Timothy H. Sullivan, superintendent, Iowa division, Illinois Central. Headquarters, Fort Dodge, Iowa.

C. G. Sutherland, assistant to general manager, Oregon-Washington Railroad & Navigation Company. Headquarters, Portland, Ore.

William Thomas, trainmaster, First district, Albuquerque division, Santa Fe Railway. Headquarters, Gallup, N. M.

W. M. Tisdale, special agent, operating department, Eastern lines, Grand Trunk. Headquarters, Montreal, Que.

B. B. Tolson, superintendent, St. Louis division, Mobile & Ohio Railroad. Headquarters, Jackson, Tenn.

G. H. Trenary, superintendent, Chicago division, Chicago and Eastern Illinois Railroad. Headquarters, Danville, Ill.

J. P. Waldo, chief train despatcher, Eastern Illinois Railroad.

P. F. Weisbrod, acting superintendent, Canadian Pacific Railroad. Headquarters, Calgary, Alta.

Walter S. Williams, superintendent, St. Louis division, Illinois Central Railroad. Headquarters, Carbondale, Ill.

J. H. Wingfield, superintendent of dining cars, Southern Railway. Headquarters, Charlotte, N. C.

H. A. Worcester, general manager, Cleveland, Cincinnati, Chicago & St. Louis. Headquarters, Cincinnati, Ohio.

C. A. Wright, terminal trainmaster, Chicago & Alton. Headquarters, East St. Louis, Ill.

P. J. Zimmer, acting assistant superintendent, M. & T. division, Chicago, St. Paul, Minneapolis & Omaha R. R.

Traffic.

T. T. Adams, traveling freight and passenger agent, Western Maryland. Headquarters, Norfolk, Va.

C. M. Andrews, traveling freight agent, Southern Pacific Railway. Headquarters, Tacoma, Wash.

J. C. Angel, acting receiving and forwarding agent, Colon agency, Panama Railroad.

A. R. Beach, chief clerk, to freight agent, Louisville & Nashville Railroad.

G. W. Bieler, agent, Lehigh Valley Railroad. Headquarters, New Market, N. J.

C. S. Blackman, general agent, Missouri Pacific-Iron Mountain system. Headquarters, Hot Springs, Ark.

T. F. Bowes, traveling agent, Illinois Central Railroad. Headquarters, Los Angeles, Cal.

C. D. Brown, commercial agent, the Southern Railway. Headquarters, Greenwood, S. C.

R. P. Buckingham, traveling freight agent, Missouri, Kansas & Texas. Headquarters, Waco, Texas.

J. T. Burke, traveling freight agent, Delaware & Hudson. Headquarters, New York.

Robert Burns, traveling freight agent, Sunset-Central lines, the Southern Pacific. Headquarters, Waco, Texas.

W. H. Chase, general southern freight agent, Delaware & Hudson. Headquarters, Philadelphia.

W. S. Clark, general agent, the Houston Belt & Terminal Railway. Headquarters, Houston, Texas.

E. R. Cobb, general freight and passenger agent, Houston & Brazos Valley Railway. Headquarters, Freeport, Texas.

D. E. Conover, agent, Lehigh Valley Railroad. Headquarters, Flemington Junction, N. J.

Howard R. Cook, agent, Lehigh Valley Railroad. Headquarters, Romulus, N. Y.

Arthur Corr, traveling freight agent, New York Central Lines. Headquarters, New York.

W. A. Cox, transportation manager, Chamber of Commerce. Headquarters, Norfolk, Va.

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P. W. Cruickshank, soliciting freight agent, Atlanta, Birmingham & Atlantic R. R.

Albert Davidson, general agent in charge of passenger and freight traffic, Grand Trunk Pacific Railway. Headquarters, Prince Rupert, B. C.

George J. Davis, soliciting freight agent, Western Maryland. Headquarters, Philadelphia, Pa.

Robert Dawson, district passenger agent, Canadian Pacific Railroad. Headquarters, Calgary, Alta.

J. Edwin Dempsey, freight traffic manager, Yukon and White Pass Railroad. Headquarters, Seattle, Wash.

C. E. Dewey, freight traffic manager, Grand Trunk. Headquarters, Montreal, Que.

W. E. Downing, general eastern agent, Illinois Central. Headquarters, New York.

G. A. Duall, division freight agent, San Antonio & Aransas Pass Railway. Headquarters, El Paso, Texas.

J. L. Durrett, assistant general freight agent, Illinois Central Railroad. Headquarters, Louisville, Ky.

E. F. Edgcomb, commercial agent, St. Louis & San Francisco. Headquarters, Kansas City, Mo.

Frank A. Eversman, city passenger agent, the Erie Railroad. Headquarters, Cincinnati.

D. L. Ewing, assistant general freight agent, St. Louis & San Francisco. Headquarters, Kansas City, Mo.

W. S. Fargo, freight soliciting agent, the Southern Railway. Headquarters, Augusta, Ga.

H. A. Fidler, traffic manager, Big Sandy & Kentucky River Railway. Headquarters, Ashland, Ky.

James Fitzsimmons, general freight and passenger agent, Delaware and Hudson. Headquarters, Montreal, Que.

C. B. Foster, assistant traffic passenger manager, Eastern Lines, Canadian Pacific. Headquarters, Montreal, Que.

T. H. Fox, commercial agent, Illinois Central Railroad. Headquarters, Los Angeles, Cal.

F. S. Franklin, district freight solicitor, Pennsylvania Railroad. Headquarters, Buffalo, New York.

Charles H. Freeman, foreign freight agent, Norfolk & Western Railway. Headquarters, Norfolk, Va.

Claude D. French, ticket agent, Lehigh Valley Railroad. Headquarters, Lake Carey, Penna.

F. C. Furry, assistant general freight agent, Illinois Central Railroad. Headquarters, Memphis, Tenn.

Harry T. Harlow, city passenger agent, the Erie. Headquarters, Chicago, Ill.

M. L. Hatch, traveling freight solicitor, Pennsylvania Railroad. Headquarters, Boston, Mass.

M. B. Hatfield, commercial agent, St. Louis Southwestern. Headquarters, Paragould, Ark.

C. A. Hayes, general traffic manager, Intercolonial and Prince Edward Island Railways. Headquarters, Moncton, N. B.

H. P. Hewes, division freight agent, Western Maryland. Headquarters, Hagerstown, Md.

R. E. Hightower, Jr., soliciting freight agent, Macon & Birmingham Railroad. Headquarters, Thomaston, Ga.

P. C. Hodges, commercial agent, Norfolk & Western Railway. Headquarters, Toledo, Ohio.

Charles S. Holt, agent, Lehigh Valley Railroad. Headquarters, Yale, New York.

J. L. Homer, division passenger agent, Delaware, Lackawanna & Western Railway. Headquarters, Newark, N. J.

Clifford B. Horsman, soliciting freight agent, Norfolk & Western Railway. Headquarters, Columbus, Ohio.

Fred Howe, agent, Lehigh Valley Railroad. Headquarters, Taughannock Falls, New York.

Elliott Howell, soliciting freight agent, International & Great Northern. Headquarters, New York.

O'Donnell Iselin, soliciting freight agent, Buffalo, Rochester & Pittsburgh. Headquarters, Rochester, N. Y.

W. M. Israel, commercial agent, the Southern Railway. Headquarters, Rochester, N. Y.

J. E. Johanson, general freight agent, Malvern & Camden Railroad. Headquarters, Little Rock, Ark.

L. E. Johnson, traveling freight agent, Missouri, Kansas & Texas. Headquarters, Bartlett, Texas.

Edward M. Kain, assistant general freight agent, the Erie. Headquarters, Buffalo, N. Y.

G. H. Kerr, commercial agent, the Southern Railway. Headquarters, Pittsburgh, Pa.

Louis F. Klein, general eastern agent, Western Maryland. Headquarters, New York.

Lester R. Knapp, division freight agent, New York, Susquehanna & Western Railroad. Headquarters, New York.

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George A. McFarland, freight claim agent, Wabash R. R. Headquarters, Buffalo, New York.

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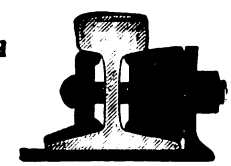

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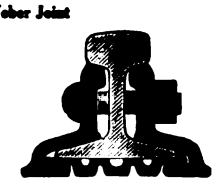

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The Board of Directors of the United States Rubber Company has this day declared from its net profits a quarterly dividend of 2% on the First Preferred Stock and a quarterly dividend of 1½% on the Common Stock of the Company, to Stockholders of record at 3 P. M., on Tuesday, July 15th, 1913, payable, without closing of the Transfer Books, July 31st, 1913.

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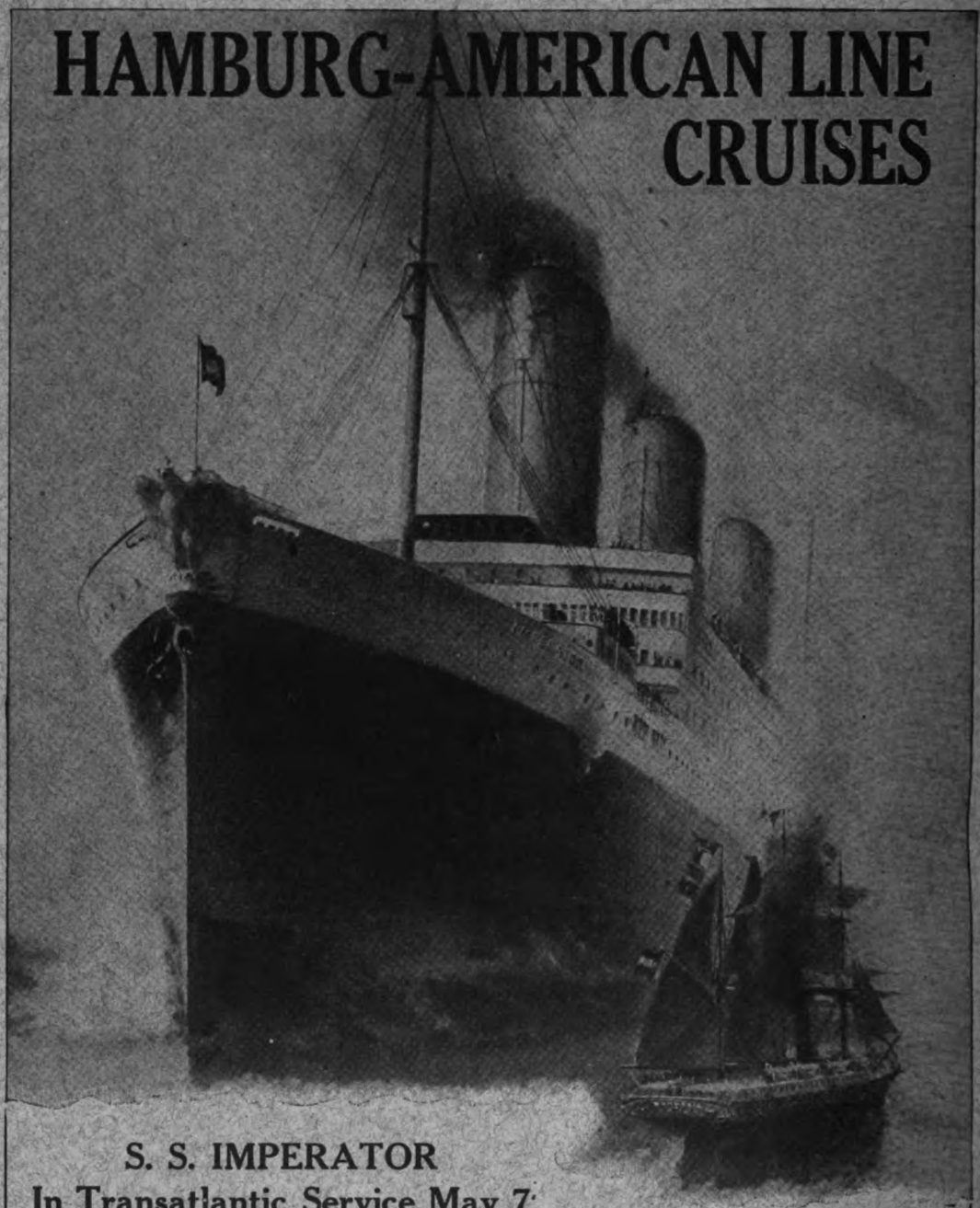

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Transportation :: Commerce :: Finance

$3.00 per Year | SEPTEMBER, 1913 | 25c. per Copy

The Government's Attitude on the Railway Mail Pay Question

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Railway World

VOLUME LVII ESTABLISHED 1856 NUMBER 9

A MONTHLY JOURNAL (successor to Railway World, a weekly publication) designed to present an accurate and comprehensive review of current events pertaining to Transportation, Commerce and Finance and to afford a medium for the development of a clearer understanding of the mutuality of interest which exists between those who employ and those who operate the railways.

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Railway World

VOL. LVII. SEPTEMBER 1913 No. 9

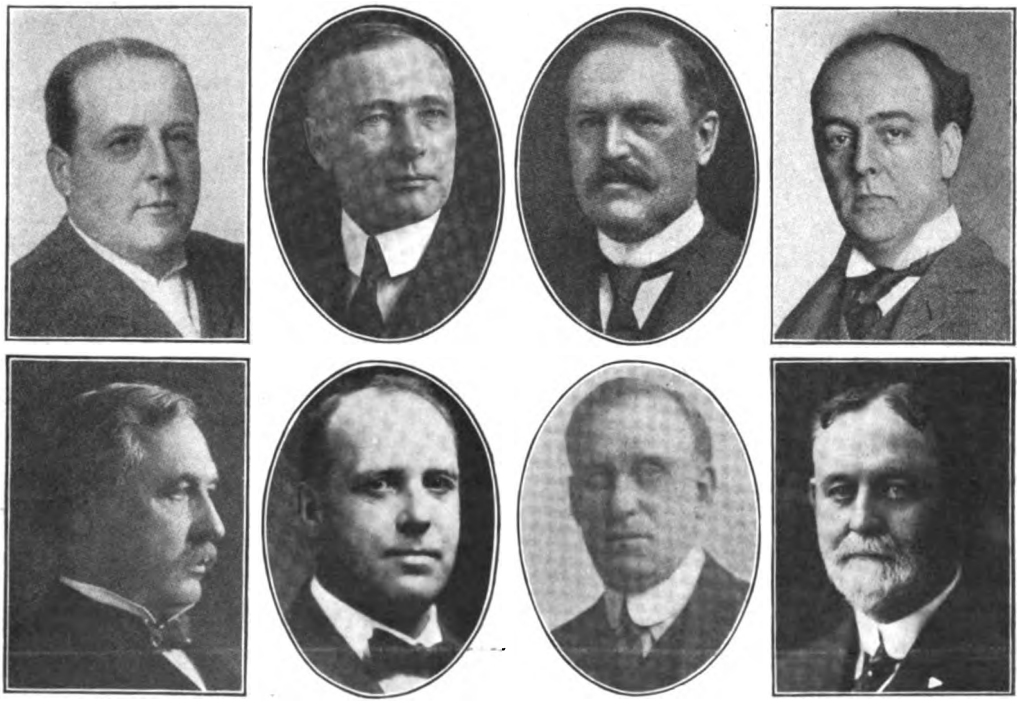
Important Developments in the Transportation Field

RAILWAY MAIL PAY DEVELOPMENTS

The relations between the Postoffice Department and the railroads became so strained during the past month, on account of the methods employed for computing the compensation for railway mail service, that the Toledo, St. Louis and Western Railroad notified the Department that it would discontinue the transportation of mail at the end of sixty days. At the time this notification was given it was rumored that other roads would take similar action, and that council had advised the carriers that they were acting within their legal rights in refusing to perform a service for a part of which no compensation had been granted. It developed, however, that other roads, while entirely dissatisfied with the Government's attitude on this question, were not prepared to take the extreme measures threatened by the Toledo, St. Louis and Western, which road in fact decided to withdraw its refusal, although protesting strongly against the unfairness of the present methods.

Later in the month the executives of seventeen Western railroads, including the more prominent trunk lines throughout the West and Middle West, at a meeting held in St. Louis, sent the following telegram to the Postmaster General:

To Hon. A. S. Burleson,
Postmaster General,
Washington, D. C.
The undersigned are prompted respectfully to



UPPER ROW.

Darius Miller, President, Chicago, Burlington and Quincy.

W. C. Nixon, Receiver, St. Louis and San Francisco.

S. M. Felton, President, Chicago Great Western.

Frederic A. Delano, President, Wabash Railroad.

LOWER ROW.

A. J. Earling, President, Chicago, Milwaukee and St. Paul.

Benjamin F. Bush, President, Missouri Pacific.

Walter L. Ross, President, Toledo, St. Louis and Western.

B. A. Worthington, President, Chicago and Alton.

Eight of the seventeen Western Railway Executives who in August sent a telegraphic protest to the Postmaster-General at Washington against the present methods employed in computing railway mail pay.

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ask you to consider, whether the United States Government is really dealing fairly with the railroads of the country, as to the matter of pay in connection with the introduction and extension of parcel post service.

The testimony of the Postoffice Department before the Senate Committee, July 25th, showed that the first three months' business of the Department, after the installation of the parcel post, had a gross increase in postal revenue of 14.54 per cent, of which at least 9.16 per cent was attributed to the new parcel post business.

(NO PAY *for Parcel Post First Six Months*):

On the basis of this statement, the Government must have collected not less than $11,266,800 in revenue from the parcel post for the first six months, beginning January 1st.

As this was before any arrangement had been made to reimburse the railroads for taking care of this new feature of the postal service, not one dollar of this big return was paid to any of them for transporting the entire business referred to.

(PAY *for* ONLY HALF *Parcel Post Business*):

To remunerate the transportation companies for the additional parcel post business transported, Congress provided, beginning July 1st ,a five per cent gross increase in their mail pay, based upon rates, zones and weight limit, in original act, although the additional business transported, amounted to at least 9.16 per cent, according to the testimony of the Postoffice Department, or nearly double that provided in the allowance.

(NO PAY FOR *Extension Parcel Post, August 15th*):

The extension of the parcel post, to be inaugurated August 15th, when the weight limit is to be raised from eleven to twenty pounds, rates greatly reduced and mileage increased, is certain to result in a vast enlargement of business.

The Government will collect postage on this business but no provision has yet been made to pay the railroads for transporting it. Not only will they receive no compensation for this increased business, but will suffer the actual loss of earnings, previously derived from the same traffic, when carried as express or freight.

No code of business requires service without pay, and it is especially unreasonable for the United States Government to require the railroads or any other interest, to serve it without any remuneration.

Congress is in session, and can immediately remedy this condition, in accordance with suggestions made by the Committee on Railway Mail Pay in letter to you, July 30th ,which we endorse and urge upon your consideration.

Postmaster General Burleson, in reply to this telegram, addressed a letter to the officials involved, in which he stated that he would do all in his power to see that the railroads get adequate compensation for every service they render in carrying the mails. He declared that he would go as far as they would in an effort to see that they procure absolutely fair treatment, but that he would be equally solicitous in seeing that they do not receive one dollar more than they are entitled to. However, his letter when examined carefully does not appear to uphold his declaration for absolutely fair treatment. For example, in discussing the provision made for additional compensation on account of the inauguration of the parcel post system, he says:

> In view of the conditions pertaining to the inauguration of the parcel post system, Congress made special provision from the first of July, 1913, by which the Postmaster General is enabled to make a readjustment within the limitation of 5 per cent of the compensation paid on July 1, 1913, upon routes which were not weighed after January 1, 1913, and without incurring the very large expense of a reweighing of the mails. All other routes were weighed at the regular weighing and readjusted on that basis. It must be presumed that this action by Congress in allowing additional compensation from July 1 was intended as adequate payment for service performed from January 1 to June 30, 1913, as well as for such service from July 1, and the Department so regards it.

This increase, the railways assert, is nearer ten than five per cent. Further along he asserts that:

> I am prepared to say now, however, that I do not favor your suggestion for semi-annual weighings. Such a plan would increase the payment to railroad companies for the carriage of the usual mails by paying additional compensation for the increase in the mails between the regular quadrennial weighings. As stated above, it has been the belief that the quadrennial readjustments amply compensate the railroad companies for the service performed during the four-year period.

This attitude of course is unsatisfactory to the carriers, as it virtually dismisses two of the principal points involved in a fairer adjustment of railway mail pay. The whole matter is now, however, in the hands of the Congressional Commission before whom the railroad companies have had a hearing and it is to be hoped that this Commission will recognize the fairness of the railways' contentions, and recommend legislation which will remedy the unfairness in the present methods.

ARBITRATORS SELECTED FOR EASTERN TRAINMEN'S WAGE CONTROVERSY

The month's important development in the Eastern trainmen's wage controversy, has been the appointment of the men who are to compose the Board of Arbitration. The six members of the complete Board are: For the railroads, A. H. Smith, second vice-president of the New York Central Lines, and W. W. Atterbury, of the Pennsylvania Railroad. For the employes, L. E. Sheppard, vice-president of the Order of Railway Conductors, and D. L. Cease, another brotherhood officer. Seth Low, president of the National Civic Federation, and Dr. John H. Finley, president of the College of the

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A. H. SMITH,
Senior Vice-President, New York Central Lines.

W. W. ATTERBURY,
Vice-President in charge of operation Pennsylvania Railroad.

D. L. CEASE,
Editor of the *Railway Trainmen*.

L. E. SHEPPARD,
Vice-President, Order of Railway Conductors.

The representatives of the railways and the railway employes on the Board of Arbitration chosen under the Newlands Act to settle the Eastern Trainmen's Wage Controversy.

City of New York, are the two neutral members selected by the representatives of the railroads and the men. The Board will begin its hearings in September, and the arbitrators must, under the Newlands law, order their award within forty-five days from the date of the first hearing.

It is a matter for congratulation to all parties concerned that the Board is splendidly constituted to handle the questions involved, and their decision will no doubt throw much light upon a question which has been sorely perplexing railway managers during the past year. It is particularly fortunate that the services of Mr. Low could be procured, as he is not only admit-

HONORABLE SETH LOW.
President of the National Civic Federation who has agreed to act as chairman of the Board of Arbitration.

DOCTOR JOHN H. FINLEY.
President of the College of the City of New York, who has been chosen as sixth arbitrator.

tedly one of the greatest authorities of the country on economic matters, but his judicial and impartial frame of mind, eminently fits him for work of this character. In view of the great importance and public necessity of the controversy, he has agreed to serve, at a great sacrifice to his personal affairs.

DESTROYING AN INDUSTRY

While the express companies may be able to survive the joint attack of a reduction in rates and parcel post competition for which, by the way, the Government at the present time is not paying the railways adequate compensation, there can be no doubt that

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COMMISSIONER JOHN H. MARBLE,
who prepared the express rate decision.

these developments have caused an enormous destruction of capital which it will prove well nigh impossible to re-establish by any means at the disposal of this industry.

A full abstract of the Commission's order is found in another section of this issue. It is practically identical with the Commission's decision of June 8, 1912, written by Commissioner Lane, now Secretary of the Interior. Perhaps the most important change is by way of modification of the present graduated scale of parcel post rates. 100-pound rates for short distances have been either left unchanged or slightly reduced, while for longer distances they have been lowered. Again for 50 pounds or less, all rates have been practically reduced. For packages more than four pounds going more than 200 miles and less than 2,000 the new express rates are generally lower than the parcel post rates; for more than 3,000 miles the rates are practically the same.

By prescribing a so-called block system, dividing the United States into 950 blocks, averaging 2,500 square miles, as originally proposed by Mr. Lane, millions of different rates now published by the express companies will be reduced to less than 650,000, and the Commission believes that the system points the way to a solution of the existing maze of freight rates.

The following interesting table prepared by the New York *Times* makes a comparison between the present express rates, the proposed rates and the parcel post rates, between New York and certain other cities:

FOR PARCELS WEIGHING ONE POUND.

	Express		Parcel
	Present	Proposed	Post
Denver	$0.30	$0.26	$0.11
New Orleans	.30	.24	.10
Chicago	.25	.23	.09
Augusta, Me.	.25	.22	.08
San Francisco	.30	.31	.12

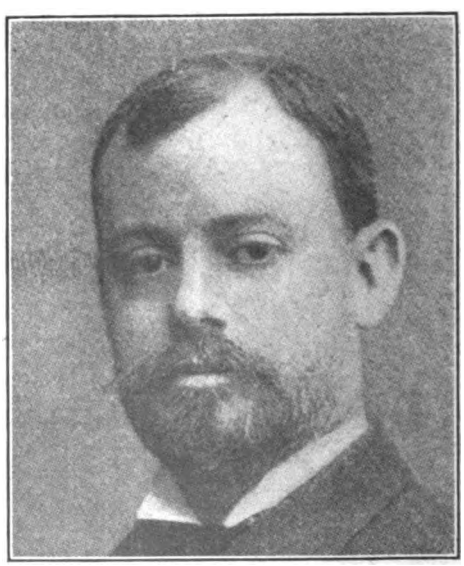
WEIGHING TEN POUNDS.

	Express		Parcel
	Present	Proposed	Post
Denver	$1.25	$0.75	$1.01
New Orleans	1.10	.63	.91
Chicago	.75	.42	.72
Augusta, Me.	.55	.34	.62
San Francisco	1.50	1.22	1.20

EXPRESS RATES ON HEAVIER PACKAGES.

	50 Pounds		100 Pounds	
	Now	Proposed	Now	Proposed
Denver	$4.00	$2.95	$8.00	$7.50
New Orleans	2.50	2.35	5.00	4.50
Chicago	1.25	1.30	2.50	2.40
Augusta, Me.	1.00	.90	1.50	1.60
San Francisco	6.75	5.30	13.50	10.40

So far as the railways are concerned, the Commission's order, taken in connection with the unsatisfactory arrangement at present in force with regard to parcel post compensation, is likely to make a material difference in their gross earnings. Under the arrangements generally in force between the railroads and the express companies, the former receive half of the gross operating revenues of the express companies for the transportation of express packages. This means that if the reduction in express rates figures out at 25 per cent on the average,



B. D. CALDWELL.
President, Wells Fargo Express Company.

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W. M. BARRETT.
President, Adams Express Company.

the amount received by the roads will be lowered by just that percentage than heretofore for the same volume of business carried. This loss is figured at anywheres from $18,000,000 to $20,000,000 which may or may not be, offset to some extent by increased business due to the inducement of lower rates, although such inducement is likely to be offset by the active competition of the parcel post.

Whether or not the express companies will contest the Commission's order, has not at the present writing, been decided. A series of conferences are being held at which the situation is being studied and the course of action mapped out. The rates become effective on October 15th unless legal action is taken, and the courts decide to order their suspension pending their full investigation.

If the new rates become effective, the loss to the express companies will be tremendous, and various estimates place it at from $26,000,000 to $40,000,000. As Vice-President Francis F. Flagg, of the American Express Company, puts it, "It is not so much a reduction as a slaughtering of rates," and taken in conjunction with the competition of the parcel post has left the express companies in a position where they can hardly be a source of envy to their worst enemies.

THE EASTERN RATE SITUATION

Nothing of importance has developed during the month in connection with the efforts being made by the Eastern carriers to procure an increase of 5 per cent in their freight rates. As the situation now stands, the advances, even if granted, will not go into effect as early as had been hoped. In some quarters it is intimated that the Commission is likely to await the results of the arbitration covering the wage demands of the conductors and trainmen of the Eastern roads. Be that as it may, it now appears that the new schedules which it was originally hoped would be filed in time to make them effective in September, are not now likely to be filed before October 15th, and there even appears an uncertainty in some quarters as to whether all Eastern roads will be ready for such action by that date. On account of the importance of the case, it is evident that the Commission will give it an unusual amount of study and attention, and that a decision may not be looked for much before the beginning of the new year. The task of preparing the new tariffs is a gigantic one, and it is estimated that it will cost approximately $350,000.

Daniel Willard, president of the Baltimore and Ohio and chairman of the Rate Committee of the Presidents of Eastern Railroads, issued a statement during the early part of August to the effect that while it was proposed shortly to file new tariffs with the Interstate Commerce Commission contemplating an increase of approximately five per cent in freight rates, this action would not be taken for the purpose of "forcing early action" on the part of the Commission. He explained that when the Commission recently refused the request of the railroads to reopen the case known as "I. C. C. No. 34000" in order that they "might be given an opportunity to show the reasons, which in their opinion justify the increase," the Commission stated that it would order an investigation of the case on its own initiative, but that two members in a minority report had stated that in order to do this the tariffs in question would have to be filed and be before the Commission as evidence.

"In view of the objections raised by the members of the Commission above referred to," said Mr. Willard, "the railroads concluded to go ahead with the preparation of new tariffs along the lines indicated in their application, and to file such tariffs as soon as they could be prepared, in order that actual tariffs might be before the Commission when the matter comes up for consideration, thus meeting the objections raised in the minority report."

"The filing of the tariffs as now contem-

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plated does not in any sense indicate friction between the railroads and the Commission, but quite the contrary. It indicates, if anything, a desire on the part of the railroads to comply fully with the expressed wishes of the Commission, and should be so understood by the public. The tariffs to be filed will very likely be suspended by the Commission until an inquiry of the whole question can be conducted."

As the time approaches when this matter is to be given attention by the Commission, the fiscal reports of the more prominent Eastern roads are being scanned with increasing interest. While a number of important systems do not make their reports until later in the year, those thus far published, strikingly illustrate that while gross earnings almost uniformly made new high records, net earnings in the great majority of cases fell below those of last year. Operating expenses, in other words, increased in such a way as not only to consume the entire gain in gross income, but to make serious inroads on net earnings.

To those who have watched railway developments of the past few years, this increase in operating expenses is a logical result of the policy which has been forced upon the railroads, and over which they have had little control. In the first place, expenses have, for some time past, been kept down to the lowest possible point, with the hope that relief of some character would develop by which railway property as a whole, might be cared for in the manner justified by present and future commercial demands. This policy has led to an accumulation of needs which, during the past few months have become so pressing, largely on account of the increased traffic movements, that the carriers have been forced to spend money liberally, even though financial returns, in a majority of cases, did not appear to justify it. Improvement to roadbed and equipment could no longer be delayed, and with many roads it has not been a question as to whether they want to spend this money but simply a question of having to spend it if they want to handle their share of the business. Aside from these necessary expenditures, increases in wages, the higher cost of materials and the additional heavy expense which regulation is constantly thrusting upon the carriers, together with unusually heavy flood damages and costly accidents, have all helped to swell the cost of operation. So far as weaker systems are concerned, these heavy expenditures have been practically in all cases, compulsory, as can be readily seen by the exorbitant rates of interest they have been compelled to pay for money, without which they could not get along. A road that can take out of its gross earnings all the money it needs for betterments, does not go on and borrow cash on the terms on which these roads have been borrowing.

In arriving at a decision the Commission, in our opinion, will be largely influenced by its belief in the necessity for the greater part of the rise in operating expenses as indicated by the 1913 reports. This necessity the carriers should find no difficulty in conclusively proving. In fact they should be able to go much farther, by indicating where much larger sums could have been legitimately and advantageously employed, had a more favorable financial condition warranted their employment.

WESTERN ROADS PROTEST AGAINST RATE REDUCTIONS

While the Western roads, as a whole, have not taken steps looking to a general increase in their freight charges, a vigorous campaign has recently been started against railway rate legislation, particularly as applied to the reductions in both passenger and freight rates forced upon the carriers by recent decisions of the Supreme Court of the United States.

A statement prepared and signed by the presidents of all the more important Western roads declares that the two-cent rate is insufficient compensation for the character of service demanded by modern travel. The roads will appeal to the Interstate Commerce Commission, and to the rate-regulating bodies of the various States. They term the prevailing low tariffs forced on the railroads of the Middle West "confiscatory, unwise, and uncalled for," particularly in the State of Missouri. A united protest will be made against all future reductions.

The statement issued by the representatives of the railroads in part is as follows:

The railroads have promptly obeyed the laws and orders in Missouri, Arkansas, and Minnesota, reducing passenger and freight rates, which were the subject of recent decisions by the Supreme Court of the United States.

The two-cent passenger fare has been put into effect in each State, as well as the reduced freight rates, but the tariffs carrying these rates have been filed under protest. In the cases of a few of the roads the claim that the rates were too low was sustained, and while these roads were permitted to maintain their rates, and will do so where com-

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petitive conditions may permit, the practical result of the decisions is to affect all lines alike in competitive business, which comprises the greatest part of the traffic involved.

It must not be understood that the Supreme Court has decided any of these rates to be reasonable. The lower courts, after long and patient hearings, decided in each instance that the rates were unreasonably low, and all that the Supreme Court decided upon this branch of the cases is that further proof should have been produced by the railroads.

Railroad men have always believed that the two-cent passenger rate is not enough to pay for the character of passenger service demanded by modern travel, and with the increase in steel equipment, automatic block signals, high speed tracks, new passenger stations, etc., that is constantly required, this is more certainly true now than ever. The freight rate reductions are unjust and unnecessary.

In the East the trunk lines are asking a five per cent increase in freight rates, and there is indication that public opinion favors it. West of Chicago the railroads as a result of these decisions are facing heavy reductions in many important rates, and there never was a time when reductions in rates were more unwise and called for with less reason than the present.

Believing that these reductions are not only wrong but untimely and unnecessary, the railroads have put these low rates into effect under protest and propose to continue their efforts to have them increased. New evidence will be carefully prepared to meet the suggestions contained in the opinions of the Supreme Court in case further litigation should become necessary, and consideration is also being given to an appeal to the State authorities and the Interstate Commerce Commission for relief instead of again resorting to the courts.

PHYSICAL VALUATION

According to estimates made by the Interstate Commerce Commission and presented to the National House of Representatives' Committee on Appropriations, the physical valuation of the railroads of the United States will take from five to seven years by a specially organized corps of men, and will cost the Government from $10,000,000 to $15,000,000, or possibly more. The Commission has asked for an immediate appropriation of $1,500,000 for the organization of the corps of engineers necessary to undertake the work.

Commissioners Clements and Prouty and Secretary George B. McGinty, of the Commission, have told the House appropriations sub-committee that a carefully worked out estimate places the cost of the field work at $1,921,500 a year throughout the period. The plan presented by Mr. McGinty contemplates the division of the country into five districts containing approximately 50,000 miles of railroad each.

Mr. McGinty explained to the committee that the estimated cost per year for each of these district organizations, with their groups or field squads, would be about $384,300, or a total per year for the five districts of nearly two million dollars. In addition to this he estimated that the accounting feature of the work would cost about $350,000 a year, and that the maintenance of a valuation office in Washington would cost probably $150,000 a year.

Although the committee was skeptical Mr. McGinty was confident that the Commission would be able to get the field force organized through the Civil Service Commission by the first of next year, to take care of the first year's work. It was for this purpose, he said, that the Commission needed $1,500,000.

Mr. McGinty mentioned cases where it cost from $3 to $75 a mile to ascertain the value of railroads. He continued:

> In all these cases only the reproduction value of the road was ascertained, whereas we are required to ascertain the reproduction value, the depreciated value and, in addition, to work out the history of the roads and ascertain the amount of money invested in their original construction. The total cost to the Government will probably exceed $50 a mile, or a total cost of from $10,000,000 to $15,000,000, but of course this is only a guess.

As reported in last month's issue, valuations of one or more railroads have already been made in twenty States by local authorities. It is reported that at least eight States are making or planning physical valuations to be used for rate making. These are California, Kansas, Minnesota, Nebraska, Oklahoma, South Dakota, Washington and Wisconsin. Ten States have in recent years made or are making elaborate valuations of all the railroads within their borders. These are California, Kansas, Michigan, Minnesota, Nebraska, New Jersey, Oklahoma, South Dakota, Washington and Wisconsin.

LEGISLATION AFFECTING RAILWAYS

An alarming increase in the activities of State legislative bodies in connection with the passage of railway legislation, is shown in a bulletin just issued by the Special Committee on Relation of Railway Operation to Legislation. It shows that during the legislative sessions of 1913, 1,395 so-called railway bills were introduced, of which 230 were enacted into law. This compares with but 292

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introduced in 1912, of which but 48 were enacted. Of those which became law in 1913, 48 refer to government of employes and include full crew laws, hours of service laws, etc.; six to arbitration, one to train rules, 33 to equipment, 18 to passenger trains, 8 to freight trains, 6 to cars to be furnished and demurrage, 2 to block and other signals, 3 to clearances, 32 to crossings, 22 to maintenance of way, 33 to stations, 3 to claims, 6 to trespassers, 2 to reports and 7 to miscellaneous.

This widespread interference with railway operations on the part of State legislative bodies, is one of the acute problems which the carriers have to face. Not only is a part of such legislation ill-advised and unnecessary, but it has and is creating an enormous additional expense which operates against the railways carrying out necessary plans for improvement. The ease with which labor organizations have forced their demands through the State bodies, has also had a detrimental effect upon labor efficiency, arousing a sense of false security with its resultant carelessness.

In an article on "The Railway as a Public Servant" in *Leslie's*, Julius Kruttschnitt, chairman of the Executive Committee of the Southern Pacific Company, makes an appeal for fairer and more considerate treatment of the railroad systems of the United States by the lawmakers, commissions and other public officials who have the authority to see that the railways render good service and charge only reasonable rates for it. He indicates the need of more revenue to enable the railroads to maintain and enlarge their equipment and to develop their efficiency up to the standard demanded by the public. He argues that when the railways are doing their best to perform their duty it is contrary to the public interest for them to be subjected to unnecessary restraints and penalties.

JULIUS KRUTTSCHNITT.
Chairman of the Board of the Southern Pacific.

Unlike Congress and State Legislatures which can make their income cover their expenditures because they control both, Mr. Kruttschnitt says the railway managements can control their expenditures only to a certain extent and can get money only by giving freight and passenger service the rates for which are fixed by public authority. Owing to advances in wages, awarded largely by arbitration boards under the Erdman act, operating expenses have increased steadily.

Mr. Kruttschnitt also states that numerous requirements on railways have further increased their expenditures and often actually reduced their efficiency. "In the past few years," he says, "State after State has permitted the Legislatures to decree that additional men shall be employed by the railways in excess of their necessities, whether viewed from the standpoint of economical operation or of public safety. As a result of this millions of dollars have been wasted in hiring useless labor—money which might have been spent to reduce the cost of railway service or improve its quality. The real purpose of this legislation has been to increase the number of men the railways must employ. The Legislatures have in effect robbed the railways and given the spoil to unnecessary employes in order that the members of the Legislatures might get the votes of railway labor."

The laws compelling railways to use special patented headlights on locomotives when headlights of high efficiency, closely approaching the electric headlight in brilliancy and power, were already in use, and the laws limiting hours of service and efficiency of employes, Mr. Kruttschnitt maintains, imposed heavy additional expenses on the railways to satisfy promoters and labor representatives. He says that scores of laws have been passed to increase the outgo regardless of the income of the railways,

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which are often beset by conflicting laws in the various States which they traverse.

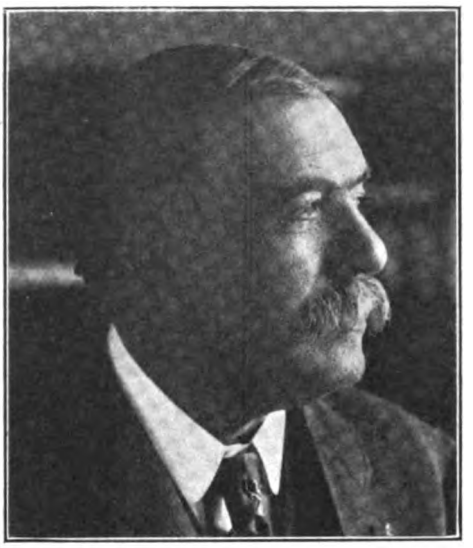
The effect of this unjust treatment, he claims, is strikingly illustrated by the fact that between 1907 and 1911 the railways of the United States put $2,044,417,000 of new capital into their properties on which they have received no return. The return in 1907 on $13,000,000,000 invested, he says, was nearly $9,000,000 more than the return in 1911 on $15,000,000,000 invested capital.

President Ripley, of the Atchison, in discussing car shortages, says present rail rates are not adequate, and that useless laws restrict railroads from raising needed capital.

"If lawmakers would stop their stream of expensive and useless legislation, which is being poured out in such floods upon railroads," said Mr. Ripley, "and see what the effect is of regulation by commissions and courts, there is little doubt in my mind that the railroads would steadily expand their facilities and increase equipment so as to make the widespread car shortage less and less probable. Much of the trouble in the past, and the possibility of danger in the future, lies not in the failure of the railroads to foresee and anticipate the needs of the country, but the inability to raise money to provide the necessary facilities, on account of the destruction of railway credit by hostile legislation."

RAILWAY SAFETY VERSUS PROPER DISCIPLINE

Those who are familiar with the recent trend of railway developments appreciate that in many cases railway labor is not responding to necessary and proper discipline in a way which makes either for efficiency or safety. As elsewhere stated, railway employes, through the successful activities of their organizations, have been lulled into a sense of false security, which is neither beneficial to themselves nor to the industry. This state of affairs, however, is only transitory as the public in the long run will demand as strict an accounting from them as from the executives so far as the safe and efficient operation of the country's transportation system is concerned.



E. P. RIPLEY.
President, Atchison, Topeka and Santa Fe.

Notwithstanding the fact that labor has apparently been decidedly favored in the passage of recent railway legislation, a number of State commissions have shown a certain restiveness concerning reports as to improper or inadequate performance of duty on the part of railroad employes, and on one or two occasions have sharply censured this attitude with demands that steps be taken to correct it. That all State commissions, as well as the Interstate Commerce Commission, will assume a similar attitude come to, can be reasonably expected, and organized labor will have to readjust its standards.

Under present methods of regulation, the railroad employe is fully as much the public servant as the official. Mr. Howard Elliott, the new head of the New Haven System, has pointed this out in an interesting manner in an address delivered some time ago before the Publicity Club of Minneapolis. He said in part:

> The railway owner may make rules and regulations and make effort to continue in business, but he cannot always do so unless public opinion in time makes it clear that when a man chooses as his means of livelihood work in a railroad, he assumes a duty to society as a whole to give absolute obedience to rules and to remain at work until suitable arrangements are made to relieve him. So dependent is the welfare of the whole country upon regular transportation that in time public opinion will declare that men in a railroad have no more right to disobey reasonable rules than have the men in the army; have no more right to leave in a body than have the men in the army. When they act thus in the army they are

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punished for mutiny and desertion. Probably no law could be framed at the present time that would cover these ideas, because it is contrary to our American ideas to say that a man shall or shall not work as he may wish. But public opinion should in time crystallize so that in some way strikes or industrial war would be things of the past, and men could only leave in a body by being mustered out in some orderly manner. We hear much about quasi-public corporations, and public opinion has gone a long way in taking away from the owner of public service corporations the right to manage his own property, to name his own rates or prices, to decide about his methods, and has imposed on him the responsibility of providing safe and adequate public service from his private means, but so far has exerted little influence upon the men who have to make the quasi-public corporation of use to the public. If a man decides to work for a quasi-public corporation he becomes a quasi-public servant and he has a moral duty and responsibility to society just as much as the owner has to see that society is not deprived of the service necessary for its existence.

The railroad manager is hampered in obtaining absolute precision and reliability not alone by the human equation, but by the operation of the force, M. Leroy-Beaulieu points out. Over many of the employes his authority is divided with the labor unions, which exercise a powerful influence in determining the extent of the authority he is to be permitted to exercise over their members. To the unions he must look for acquiescence not alone in the rates of pay and terms of employment, but in the rules he makes, the authority he exercises over men charged with various duties, and the obligations under which a large number of men work. His power to cull his forces and discard not only the unfit, but those who do not demonstrate their entire capability, is limited.

The American people have corrected some of the errors in corporate management and realize that organized capital is necessary to the welfare of the country, but that it must be controlled and regulated.

Organized labor is a great force that makes for good or evil of labor and of society as a whole, depending on the wisdom and patriotism of the leaders.

Most men want to work and support their families, but they fear the ridicule of their fellows and sometimes follow too blindly an unwise leader who may do them a real harm.

Public opinion at one time justified burning and torturing people because they did not follow the same religious practices as those in authority. In old Salem, it justified burning women who were thought to be witches. Less than 100 years ago it justified one man killing another in a duel because of some insult, real or fancied.

To-day physical violence and social ostracism are still in practice toward those who do not wish to join a labor organization, but who do wish to work. But public opinion will change and say to organized labor, as it has said to organized capital: "You must be fair to all." J. B. McNamara in his confession said: "I did what I did for principle." It is only necessary for an aroused public opinion to speak out and show the unfortunate men like the McNamaras that the many good men in the ranks of labor and the many good men in the other walks of life will not stand for that kind of principle.

THE 1913 FLOOD

Much has been written since March regarding the devastating floods which visited the Middle Western section of the country during that month. It remained for the Pennsylvania Railroad Company, however, to prepare the first complete and comprehensive statement, in the form of an illustrated booklet, regarding the damage done to its system and the tremendous efforts which were made to quickly repair and rebuild roadbed and bridges, which, in many cases, were literally swept away. The accompanying maps graphically illustrate the complete manner in which this system, west of Pittsburgh, was put out of commission.

Not only were these lines a wreck in the sense that every division was effected, but all other roads in Ohio were in equally bad shape. There was the Erie Railroad with its double track of main line; the Baltimore and Ohio, likewise; the Wabash, with its single track, and the Pittsburgh and Lake Erie with all its branches more or less damaged.

So far as the Pennsylvania was concerned, its lines all through Ohio, running from east to west and from north to south, were literally shot to pieces. Bridges were gone; tracks and embankments swept away, holes in a thousand places, and no through line anywhere. In addition to this, the labor condition could not have been worse, and as every city needed every available man for its own work, the Pennsylvania had to depend upon itself. As a result there were no eight-hour days, no coming home in the evening and no meals with the family. The company did, however, endeavor to show at least some of its appreciation of the loyalty of the men when its masons and carpenter gangs and shopmen engaged on damaged portions of road had more than twenty-four hours, were paid one and one quarter time for all hours worked, including the time consumed en route between headquarters and their work. Extras were also paid to individuals called on or volunteering for unusually hazardous work. Bonuses were paid to all classes of labor in varying amounts, reaching down to the track laborers. The pay checks for these services bore the sentence, "As a token of appreciation of the spirit of co-operation shown during the recent flood." These bonuses and extra allowances amounted to more than $70,000.

Notwithstanding the gigantic operating

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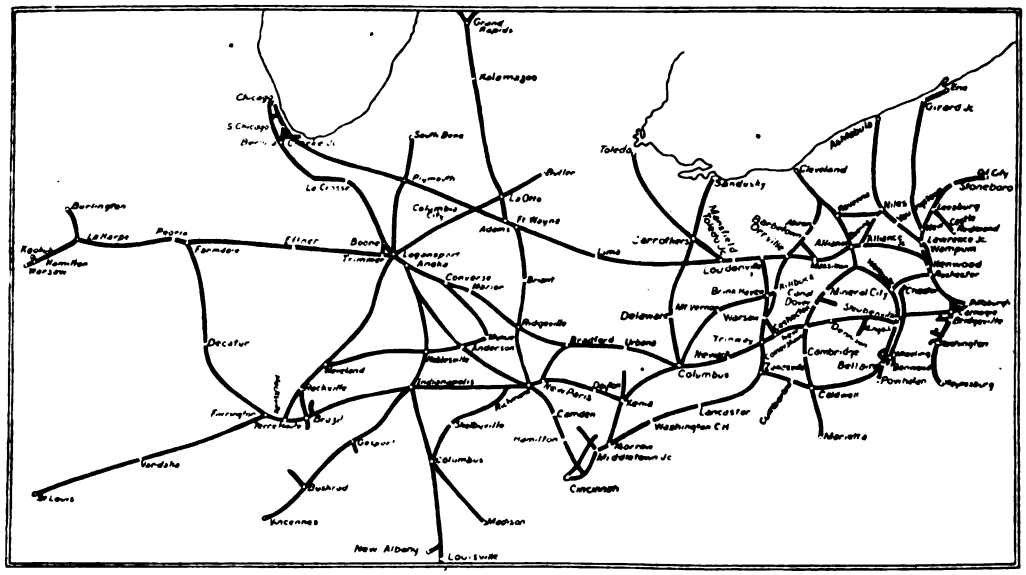
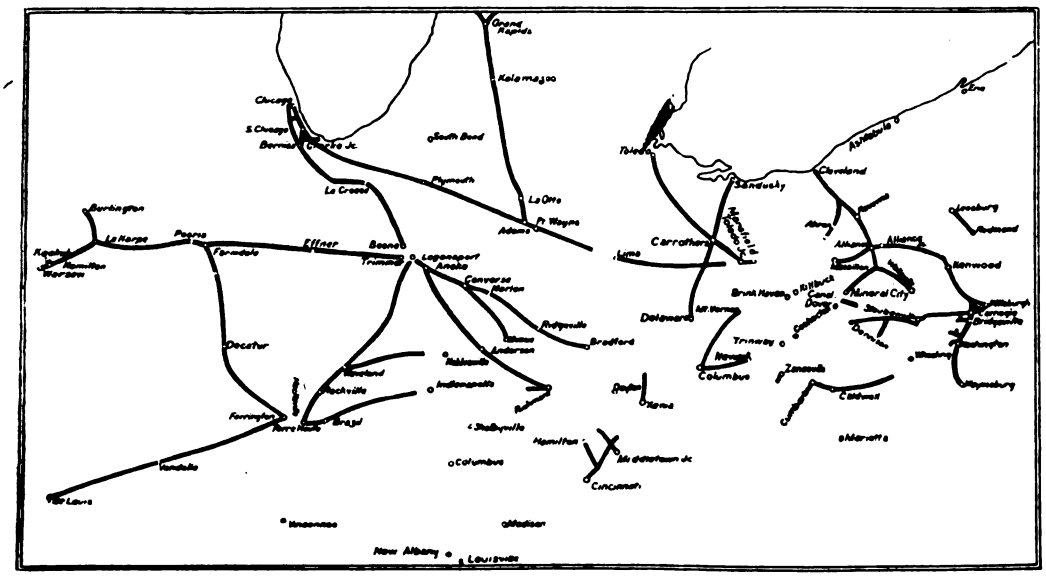
Lines Before the Flood



After the Flood Came



THE BREAKS SHOW WHERE THE TRACK WAS OUT OF COMMISSION.—THE IMPOSSIBILITY OF THROUGH TRAIN SERVICE IS OBVIOUS.

problems to be solved, the patriotic stand taken by the Pennsylvania Railroad is indicated by the following message carried in person by the division superintendents to Governor Cox, of Ohio, and Governor Ralston, of Indiana, which was: "Whatever railroads we have left, crippled though they are, are at your disposal; use them." The railroad officers were in hourly communication with Government officials of the States effected. Cars and trains were hauled, troops and supplies were moved, and for any relief or Government work, there was no suggestion of a pecuniary return. The predominant idea was to allay human suffering and to save human life.

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The report refers to the way in which the campaign against the flood was organized, in the following manner:

As early as Tuesday night the Board of Strategy was in session in Pittsburgh. From that time until Sunday, April 5th, it was in continuous session day and night. The "Board of Strategy" was made up of the higher general officers of the road and their assistants, with their consulting staff of engineers, motive power and transportation men.

Everything was done in the name of the General Manager. What was going on in the sixteen divisions of the road was reported to this Board, and it was thus in absolute control of and in touch with the situation. Its information was made possible by the work of the Superintendent of Telegraph, who had moved his offices next to that of the Board of Strategy, and was there carrying on his campaign of wire restoration. For the first thirty-six hours every one was on duty; after that they averaged eighteen hours a day individually.

The three general superintendents of the three systems—the Northwest, the Central and the Southwest—established headquarters where they could be in touch with their own divisions and with headquarters at Pittsburgh.

The task to be accomplished was gigantic but the splendid organization responded nobly and in almost a miraculously short time sufficient repairs had been accomplished to permit the resumption of traffic almost upon a normal basis.

To go into detail of the Pennsylvania losses would hardly furnish an adequate idea of the losses as a whole, but it may be interesting to give a few details, only suggesting that the problem met would not have been a simple one had the damage been concentrated instead of being widely scattered, and consequently very difficult to get at efficiently.

Number of bridges lost	24
Number of bridges damaged	50
Number of spans lost	39
Number of spans damaged	48
Bridges lost—Length in feet of road	3597
Bridges lost—Length in feet of single track	4318
Bridges damaged—Length in feet of road	4189
Bridges damaged—Length in feet of single track	6239

The estimated cost of replacing these bridges is $1,027,116.

Length of trestle built for single track, in miles	1.94
Length of trestle built for double track, in miles	0.96
Length of trestle built for three tracks, in miles	0.02
Length of trestle built—Miles of road	2.92
Length of trestle built equivalent to miles single track	3.92

The estimated cost of these trestles is $336,144.

Length of single track road requiring repairs, in miles	88.7
Length of double track road requiring repairs, in miles	41.1
Length of three-track road requiring repairs, in miles	2.5
Length of four-track road requiring repairs, in miles	2.8
Length of road requiring repairs, in miles	135.1
Length of road requiring repairs, equivalent to miles single track	189.6

The estimated cost of these repairs to the road is $1,396,290.

In addition to the above, damage to stations and other buildings was $70,900; to equipment, $84,285; and to telegraph lines, $107,505.

The direct property loss to the Pennsylvania is estimated at $3,600,000 in round numbers, and it provides the most pertinent of arguments for allowing the railroads to so fix their rates as to provide for a surplus. The cost of repairment, under the ruling of the Interstate Commerce Commission, must be charged to operating expenses. So heavily have low compulsory rates weighed upon many of the public utilities companies that the damage done by the flood has wiped out the surplus of many of them and they are now in the hands of receivers. Others have been very badly crippled.

Samuel Rea, president of the Pennsylvania System, made the following comment on the flood and on the way the disaster was met by the regular organization of the company:

The officers and the employes of the Pennsylvania Lines west of Pittsburgh have done remarkably efficient work in restoring their lines to service. Immediately the seriousness of the storm damage was known, the company placed all its facilities at the command of the State authorities of Ohio and Indiana for the relief of the afflicted area.

Simultaneously most energetic efforts were instituted to repair the various lines and re-open them without delay to the service of the public. That this work has been done so promptly, so carefully, and with such freedom from casualty reflects every credit upon the officers and employes faced with responsibility for meeting this extraordinary emergency.

No event in the history of railroading in this country has shown more convincingly the necessity for the railroads to be permitted to earn sufficient revenue not only to make reasonable return on invested capital, but also to have a surplus sufficient to meet emergency expenditures like these and to improve the properties in those respects which, even if not adding to gross revenue, make the lines better adapted to withstand the ravages of storm and flood and the better able to perform their duties to the public with efficiency and satisfaction.

INSUFFICIENT RAILWAY INCOME

The Railway Business Association has recently prepared and published a bulletin entitled "Railway Income Still Under 1910," which declares that action as to freight rate advances "should be based upon the known

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past and not upon the half revealed present." In other words, it points out that the latest statistics deducting fixed charges are those for the year 1912 and indicate net corporate income 15 per cent under 1910. For this reason, month reports of operating income for 1913 will signify nothing as to net cororate income until the fixed charges yet to be reported shall have been deducted. The Bulletin presents figures to show that in the years since 1910 for which statistics are complete—1911 and 1912—net corporate income was 20 per cent and 15 per cent respectively under 1910. For eleven months of the fiscal year preliminary returns covering revenue, expenses and taxes are analyzed and by estimating fixed charges and other non-operating deductions it is shown that there is no reason to count upon net corporate income even in 1913 as large as it was in 1910 available for improvements and dividends. Fixed charges holding to past averages, income for eleven months in 1913 would be $11,689,312 under the same period three years earlier, "and this with a plant in 1913 estimated to have 33,901 more miles of track than the plant of 1910, 293,331,501 more pounds of locomotive tractive power and 14,175,970 more tons of freight car capacity, and to have carried 7,900 million more tons of freight one mile."

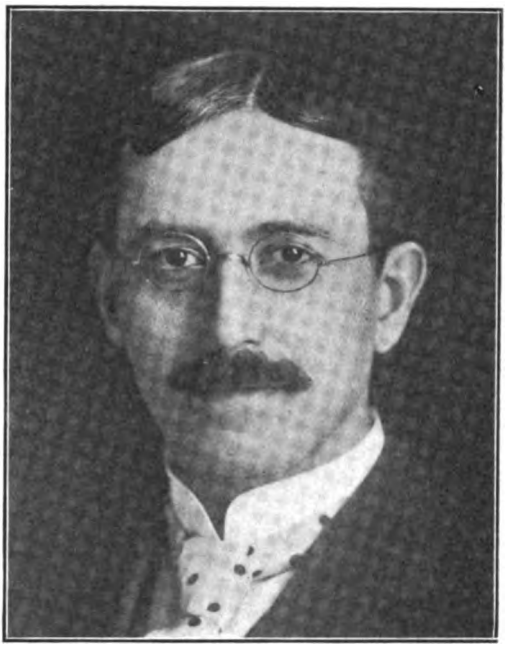
Recalling that steam railroads in 1912 had the smallest listings of new securities in ten years and non-railroad corporations the largest, it is remarked that "the practical condition of declining credit is not disputed."

Resolutions have been adopted by prominent business organizations in St. Louis, Cincinnati, Pittsburgh, Philadelphia, Baltimore and other large cities favoring or deciding not to oppose higher freight rates whereunder the Eastern roads may provide better service. President George A. Post says:

> Commercial organizations, local, State and National, can promote national prosperity by making known, as some leading bodies already have done, their conviction of the need for more railway facilities and their willingness to pay what is legitimately necessary to get them.

E. C. Simmons, of St. Louis, is quoted as saying:

> Thousands of shippers have come to realize that their business is prosperous only when the railroads are prosperous and any slight increase in freight rates which they might have to pay would soon be lost sight of in the enormous increase in the profits of their business which this general prosperity would bring about.



FRANK NOXON.
Secretary of the Railway Business Association.

The Bulletin adds:

> Hardly any national calamity can be more exasperating than industrial prostration descending in the midst of busy times, with order books full and mills running to capacity—prostration brought about by congestion of terminals, throwing into idleness, with their employes, factories which could neither obtain raw material nor deliver finished product, while foodstuffs lay rotting in cars and elevators.
>
> The public had better be safe than sorry—assured of good service rather than in danger of a transportation breakdown.

A second article, "Making Equipment Carry All It Can," tells "what the shippers and the railroads are doing to minimize the necessity for more facilities," but "they can not do enough."

With a net car surplus on August 1, 1913, of 58,455 and a decrease from that date to autumn low supply equal to the annual average decrease from August 1, 1908-12, or 150,400, the autumn net shortage in 1913 would be 91,945, as compared with 87,000, the previous record, that of 1907. The shortage thus indicated would be aggravated by a severe winter possible into a great national congestion.

As forecasting a good sized fall tonnage, cereal crops are estimated at about the ten-year average, with cotton 39.1 per cent

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above; while iron production for the first six months of 1913 was 1½ million tons above previous high record, expenditure for construction of new buildings outside New York City in excess of previous record, exports 6 per cent over 1912 and for seven months of 1913 bank clearings outside New York City 3.9 per cent greater than for the same period in 1912. In this situation Chairman Clark, of the Interstate Commerce Commission, and President Kruttschnitt, of the American Railway Association, in letters, as well as the National Industrial Traffic League in a resolution "unite in calling upon all concerned to do their utmost with a transportation plant inadequate for peak of load."

HOWARD ELLIOTT'S ADDRESS TO NEW HAVEN STOCKHOLDERS

Howard Elliott, who became president of the New Haven System on September 1st, attended his first meeting of New Haven shareholders on the preceding Friday. He delivered a short address in which he called the shareholders' attention to the fact that they had a duty to perform in protecting the interests of the company and exerting an influence which would prove helpful to the management. He pointed out that railway directors and officials of late years have been sorely beset trying to do their duty to the owners and to the public. Continuing, he said:

"We have had to meet great rate reductions, increased cost of labor, increased cost of material and demands for better facilities. All of these have created a problem that is most difficult to solve because there are only 100 cents in a railroad dollar just the same as in any other dollar.

"But it will be my aim to try to see that every dollar received into this company's treasury, whether from earnings for service performed, or from advances by stockholders or from loans from others, is expended with the greatest care and prudence and that the railroad will be managed solely with the idea of economy, efficiency and safety so as to safeguard your interests not only now but in future because the railroad has got to go on forever and if it should happen that, in trying to protect your interests, there is some disturbance for the present, that is something to be patient about.

"The stockholders can do a great deal of good, each one in his own circle, in trying to present the railroad side to legislatures, to members of Congress and commissions and to all who make the different laws under which the railroad is trying to operate; the stockholders can do good by pointing out that there are two sides to this question, and that the side of the stockholders must not be lost from view in considering the question and in making demands upon the railroad that the officers and directors are most anxious to meet, if they can. They are torn between trying to protect the stockholders and trying to give the public what they need and should have; but you can do much good by using your influence, each one of you, to point out both sides of this question."

A statement has been issued by the management of the New Haven to the effect that while Charles S. Mellen, the retired president, will have no official connection with the system after the end of August, he has agreed to place at the disposal of the president and the directors, such information as he has acquired from his long connection with the property, and has also agreed to give advice from time to time as requested. In other words, he will act in an advisory capacity when requested to do so.

In discussing the probable attitude of the Government towards the New Haven under its new management, the Springfield *Republican* states that "if Attorney General McReynolds has been persuaded to give the new management of the New Haven Railroad system 'a chance,' before instituting a suit against the company under the anti-trust law, the public must infer that the company intends to reorganize in a way to makes such a suit futile and profitless."

While the Attorney General has issued a statement in which he says: "There has been no direction to suspend the investigation," it is felt that he desires every opportunity given the new management to develop some plan of procedure which will make a suit unnecessary.

PANAMA CANAL DEVELOPMENTS

Latest reports from the Canal Zone announce that, as the result of the prospective substitution of dredges for steam shovels in the excavation of the famous Culebra Cut, the canal may be ready for shipping by next December. Even earlier than that light draught vessels are likely to be passing through the waterway.

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Contemporary Opinion

President Elliott's Task.

IN accepting the position of chief executive of the New Haven System, Mr. Elliott has undoubtedly undertaken the most difficult task of his career, and it is hoped that the people of New England will appreciate this, and lend his efforts their moral support. Speaking of the difficulties which Mr. Elliott will have to face, the New York *Times* remarks editorially:

"The problem before him is how to sustain the earning power of the New Haven System in competition with the trolleys and the water carriers when divorced from them. The rates cannot be raised, both because of regulation and because of traffic conditions. Everything into and out of New England takes a longer haul than to ports which are less easterly, and the facts of geography cannot be altered. Fuel is higher than for its competitors, and switching charges are costlier because entire New England is practically a terminal for a large section of the United States. Volume of traffic is a necessity, and yet it can be filched away by rivals with many advantages.

"It is sure that he will have to meet competition which Mr. Mellen controlled. He also will have to allay irritations which arose from the manner in which Mr. Mellen met criticism which seemed to him as unintelligent as unsympathetic. He met railway problems in the railway manner of his time. Mr. Elliott must confront the same problems in another manner, which as yet is theoretical. If he succeeds he will do more than fortify the future of the New Haven System. He will found a new school of railroading and establish theories now contentious. He must think he sees his way clear, or he would not attempt it. No one can wish that he should not succeed, and no one should oppose him in the manner which gave him his opportunity. It is possible to suppose that the dividends of the New Haven System may be more secure than under the open-handed methods of Mr. Mellen, but it remains to be seen whether this will be more to the benefit of the users of the New Haven's facilities now to be restricted. Rest and recuperation are to be the watchwords, rather than expansion. The country needs it as much as the New Haven, and will be correspondingly observant of results."

Railroad Discipline.

THE recent disastrous wreck on the New Haven has caused newspapers to break out afresh against railroad management and operation in general. It is about time, however, for a more general recognition of the fact that a great majority of recent railroad accidents have been directly traceable to the carelessness of railroad employes, rather than to any inherent weakness in the company's equipment or method of operation. These half baked criticisms, while hurling maledictions upon the heads of railroad officials, fail to place the blame where it really belongs, and are, in themselves, a contributory factor in encouraging disorganization and inviting a continuance of lack of respect for proper discipline.

In a recent editorial, the New York *Commercial* remarks that:

"Lack of discipline in the operating departments of American railroads is the cause of a large part of the accidents about which so much is heard. It also has a serious effect upon the costs of operation and the earnings of railroads about which the public knows nothing. The labor unions have become so strong that they are able to interfere with the promotion of locomotive engineers and other workmen for efficiency in service. The men know that extra efficiency and care is not rewarded as it should be, because the labor unions do not allow them to take what is their due in the way of extra pay or better terms of service, the excuse being that this would lead to unjust discrimination between employes of the same class."

The editorial then proceeds to show how the labor unions are constantly attempting to interfere with the necessary discipline of the men, and that such interference strikes at the very foundation of safety in railway operations. If, for example, to quote the editorial "a railroad official cannot order another locomotive driver to take out an engine when he fears that the man whose name is at the head of the list is unfit to drive the engine, there is no way to protect the public from disaster. The captain of a ship would certainly take a man away from the wheel and put another in his place at a moment's notice, if he thought there was anything wrong with the man's condition. It is not always easy to determine exactly what is wrong with a man, and it is often very hard to prove that anything is wrong. The foreman or inspector of a railroad should be able to act promptly on his intuition if he has no more definite cause for telling a man that he is unfit for his task. A locomotive driver may be perfectly sober, and yet be in a nervous condition, perhaps through loss of sleep, caused by sickness of some member of his family. The man is not to blame for this, and certainly would not be censured by his superiors, but the lives of travelers should not be endangered simply to give him the run for which he was slated. Only by conferring authority upon officials can discipline be maintained."

The Effort to Eliminate Accidents.

(From the *Iron Trade Review*.)

GREAT corporations are emphasizing the fact that safety is the first consideration in the conduct of operations. If indifference was formerly displayed on this subject, there is now an acute awakening. The personal injury question is regarded as an inseparable part of overhead and liability for it is not evaded. The movement for safety first is not confined to the United States, but is world-wide. The Board of Trade returns of accidents and casualties on the railways of the United Kingdom is just at hand. The number of passengers killed during 1912 was one in 68,100,000 transported, while the injured was one in 1,895,000 transported. Small as this ratio is, it is larger than that of previous years. The casualties to employes show an increase of about 200 over the previous year. One locomotive driver in 13,665 and one fireman in 12,700 were killed. Many of the accidents were preventable, that is

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to say, were due to lack of caution on the part of employes themselves. The figures prove, however, that railroading is a reasonably safe calling if the men are alert and act with ordinary intelligence.

In the United States the campaign for safety is carried on even to a greater extent than in the United Kingdom. Railroad workers are organized down to the commonest laborer through committees to seek some means of preventing accidents. The end sought is to eliminate altogether the avoidable accident. The avoidable accident is almost invariably one for which the employe himself is to blame.

All of the great steel plants in the United States have the dangerous places marked with red discs and on the vessels plying in the ore trade on the Great Lakes all the places of possible danger are conspicuously indicated.

It is clear that the management is doing all it can to minimize accidents. Their elimination depends upon the alertness and intelligence of the men.

Railroad Valuation.

ROBERT E. IRETON in the *Magazine of Wall Street* for August, discusses in an interesting manner railroad valuation, and shows by examples of valuation thus far attempted, how vastly different are the results obtained by those who have undertaken such work. He shows how the Minnesota Railroad Commission's valuation figures for that State were pronounced too low by the courts; how the Texas Railroad Commission's figures of $212,000,000 compared with the Texas Tax Commission's figures of $419,000,000; how the Wisconsin Tax Commission's figures of $34,630 a mile compared with the capitalization of the roads of $33,420 a mile. He also points to the fact that Professor Swayne, of Harvard, valued the New Haven System a few years ago for a special Massachusetts Commission at $600,000,000, the book value of the road at that time being but $425,000,000. Considering the railroads of the country as a whole, he shows that the Census Bureau estimated the value of railroads operating in 1904 at $11,244,852,000, while the report of the Interstate Commerce Commission for that year shows the value of railroad stock and bonds to have been but $9,585,467,711. In closing his article, he says:

"The theory that the railroad valuation of property is established by the cost of the replacement of a railroad's physical possessions is absolutely illogical. Thereunder no allowance would be made for that fluctuation in values which is constant, and which generally favors the roads. Nor would allowance be made for the 'use' of the property—the element or factor which gives the railroad life and existence; nor for the 'brains' or efficiency of its management, which is ever an asset of any going concern. And, finally, but preeminently, the replacement theory gives no consideration to the earning power of the road—the real factor which gives it value.

"While there was much over-capitalization of railroads in this country prior to 1880, that is not the case to-day. Through reorganization and application of net income to betterments, refunding of high interest bearing bonds, increased trackage and equipment, valuation of property and greatly improved service, our railroads are worth more to-day than the sum total of their stocks and bonds, and could not be reproduced for anything like that aggregate. Railroad over-capitalization, except in rare cases, is largely a figment of the imagination."

Sterilized Capital.

(*Saturday Evening Post.*)

STOCKS and bonds in America and Europe have suffered an enormous decline in price the last six months. You read about it and say: "That means nothing more than a different set of quotations; the actual wealth the securities represent is as great as it was before." But that is not necessarily so. The moment capital's power to reproduce itself—which is tantamount to its earning power—is crippled, the capital itself begins to perish. With some exaggeration John Stuart Mill wrote: "The greater part of the wealth now existing in England has been produced by human hands within the last twelve months. A very small proportion of the large aggregate which is now in existence existed ten years ago. The land subsists, and the land is almost the only thing that subsists. Everything which is produced perishes, and most things perish very quickly Capital is kept in existence from age to age not by preservation, but by perpetual reproduction."

If you turn to the schedule of national wealth issued by the Census Bureau you will see how nearly true this is. There is land and gold and silver. Everything else is a product of very recent years and is passing away even while the enumerator is writing it down—live stock, agricultural products, manufactured products, mining products, merchandise, tools, machinery, railroads, which are constantly wearing out and being renewed. Scarcely a physical particle of the railroad that was in existence twenty years ago exists now. It must reproduce itself year by year. So must practically all capital except land. We rebuild almost our whole transportation and manufacturing plant every twelve or fifteen years. To destroy capital nothing is necessary except to cut off its power of reproduction, or earning capacity—a fact to be kept in mind, for example, in considering railroad rates.

Decreasing Railway Net.

"AN obvious fact noted in connection with railway earnings," says Bradstreets, "is the ascending tendency of operating expenses. This is not a new development; but inasmuch as it continues to advance, it is plain that operating officers of railways, speaking of them collectively, have burdens that are analogous to those of the ultimate consumer, so called. An example in this respect is furnished by the returns for the month of June. These show that gross receipts went up 7 per cent on a total of $237,937,321, over those for June, 1912, while at the same time expenses increased 10.6 per cent, thus more than absorbing the gain in gross earnings and leaving a decrease of 1.6 per cent in net revenue. Stated in another way, gross earnings increased $15,674,105 and operating expenses $17,779,923, while net receipts fell $1,105,818. In June, 1912, gross earnings moved up 7 per cent, while net revenue advanced 6.1 per cent. These ratios would be quite favorable were it not that both items fell 2.4 per cent and 4.9 per cent in

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June of 1911. On the basis of comparisons, the showing for this year is not calculated to spread much encouragement, particularly when it is considered that capital expenditures to keep up with the growth of the country have increased, and that more funds are required to pay stockholders for having made investments. Because of the facts it is not astonishing that some of the roads are appealing for higher freight rates.

This table presents the statistics in short compass:

	June, 1913.	June, 1912.	Inc. p. ct.
Gross earnings	$237,937,321	$222,263,216	7.0
Operating exp.	173,643,845	156,863,922	10.6
Net earnings	$64,293,476	$65,399,294	*1.6

*Decrease.

Too Much Legislation.

(From *Financial America.*)

GOVERNOR O'NEAL, of Alabama, did not exaggerate in his address before the House of Governors the other day, when he said that in many, if not a majority, of the States a session of the legislature is looked upon as something in the nature of an unavoidable public calamity. In recent years this is altogether too true, and the worst of it is that the public point of view does not seem to affect very much either the character of our annual enactments or to limit their output.

In many States corporations have been driven out. In others the drastic enactments prevent capital from entering. As a resultant in these States progress is halted, development is checked, and prosperity is endangered. Commerce is restrained therein and that is bad and injurious for any community. What is still worse, the business interests that are not affected by the visitations and activities of the demagogic statesmen, pursue the tenor of their way practically in fear and trembling. They know not how soon the sword may be drawn against them, and even the least observing among our citizens can perceive that the result is restraining and retarding to healthy progress, to sane and sound business development.

In the last year or two the Governors of certain States, in order to cope with this situation, have set their faces steadily against the enactment of drastic anti-corporate legislation. They have even gone so far as to mention it in their inaugural addresses, to advise against it, and to point out its crippling consequences. Capital, however, is the most timid element dealt in. It takes fright quickly and withdraws speedily to places of safety. Once affrighted it is exceedingly hesitant about returning to the scene of its apprehension. This is now being experienced in certain Western States, and the result does not augur well for their immediate development.

Railway Pay for Parcel Post.

(From *Philadelphia Record.*)

AN unprejudiced consideration of the question addressed to the Postmaster General by seventeen Western railroads can scarcely lead to any other conclusion than that fair dealing requires a readjustment of railway mail pay in connection with the introduction and extension of the parcel post service. The estimate is conservative that the Government collected $11,266,800 in increased revenue from the parcel post service during the first six months of its existence. And for the additional transportation service represented by this increased volume of postal business the railroads received no compensation whatever. The parcel post act authorizes an increase of 5 per cent in the gross mail pay, beginning with July 1. This would amount to about $7,500,000 per annum; and, if the weight limit and rates of the parcel post had remained as established in the Act of Congress, this might have been fairly remunerative.

The new regulation, however, will bring to the Postoffice a quantity of parcel post matter which if carried by the express companies would have produced over $40,000,000 in annual revenue. Under existing express company contracts with the railroads the latter would have received about one half of this revenue for transportation. The probability that the railroads will lose $20,000,000 of income through the parcel post extension is, therefore, evident. But the Postmaster General probably cannot give the relief desired. Railway mail pay is governed by Acts of Congress. Nor would the easy method of increasing by 10 per cent or thereabouts the gross amount payable to the railroads for mail transportation be the most equitable way of redressing the situation.

Railway Scrap.

(From *Harper's Weekly.*)

THE wreckage of hundreds of thousands of tons of steel and iron that was piled up after fire and earthquake had devastated San Francisco, was called the biggest scrap heap in the world. Yet it shrinks into insignificance in comparison with the amount of scrap material that the railroads of America accumulate every year.

The scrap heaps of the railroads grow larger and larger every year, owing to the steady expansion of business. They are composed of used-up locomotives, machinery and material of every sort and description. Even at the small prices per ton or per pound at which this metal waste is sold it brings in millions of dollars every year.

Of all the vast amount of material that a railroad purchases every twelvemonth, 90 per cent eventually finds its way into the scrap heap. In no other business are the odds and ends that are no longer serviceable collected with so much care. Everything from the frames of tin lanterns to the ponderous driving wheels of locomotives reaches the scrap dock in the end.

But before anything is "scrapped" it has to be passed upon by about a dozen experts. They look it over and see if there is a possibility of its being used in any other way before it is sold to the junk man. On one of the Eastern railway systems, a few years ago, a large quantity of steel freight car bolsters were found to be unaivailable for the type of car for which they were originally intended. One by one the mechanical experts shook their heads and voted that they be sent to the scrap dock. But one of the examiners suggested drilling an extra hole in the condemned bolsters and using them on a different class of

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truck than that for which they were intended. This was done at little cost, and their journey to the junk pile was delayed.

After the material gets to the scrap dock another set of experts goes over it. There was a time when the junk dealers knew more about the value of scrap metal than the railroad men. The dealers bought craftily and at low prices, because the scrap was sorted into only a few classes when it was offered for sale. After buying the material the dealers resorted and made big profits. Many of them grew very rich.

Nowadays the Railway Storekeepers' Association is as wise as to the value of the scrap as the dealers. The members of the Association have been studying it year after year and discussing it at their annual meetings. At present scrap is classified into more than a hundred different grades and varieties. Each has its market price. There is no longer a chance for speculation or guessing. The railways are getting more for their waste material to-day than ever before. The average is between $15 and $16 a ton.

When the car scrap is picked up and loaded on the cars it is only roughly sorted. Its final sorting and classification occurs when it reaches the scrap docks. The manual labor of unloading and handling this material used to be a very heavy item of expense. Now big electro-magnets attached to movable cranes save much time and money. One of these cranes will do the work of fifty men.

The Detail of Railroad Ties.

(From the *Wall Street Journal.*)

SO much stress is laid upon the importance of the rail in the creation and upkeep of railroads that the more modest but indispensable tie is little thought of unless grave accident calls attention to its fundamental position in construction. Ties represent perhaps the largest return, in proportion to investment, of any part of the equipment of a railroad. Cheap in themselves, their aggregate cost is great. Some idea of this is given by figures showing what ties really mean in the bills of the railroads. Minimum renewals per annum, varying all the way from the high maintenance of the standard roads to the perfecting of poor trackage, represent at the least 75,000,000 ties. The 750,000,000 railroad ties now in use have an initial value of $300,000,000.

Problems presented by the question of ties are awakening expert attention. The time is not far distant when lumber supply will cease to offer enough material for ties in addition to increasing demands from many other industries. Tie substitutes are being sought. Steel has not yet given satisfactory results. Opinion leans to concrete ties. Without allowing for any growth of our railroads, the cost of replacement of wooden ties on the railroad tracks of the country would mean a sum of more than $1,500,000,000. This takes inadequate account of the developments of the future. Nor does it reckon with the electric and trolley systems which are slowly, or rapidly, starting to equal in extent the 250,000 miles of railroad track in the United States.

There is another consideration in the tie question. Between 60,000,000 and 75,000,000 ties are burned each year, the railroads having found it practically impossible for various reasons to sell or to give away the discarded ties. This destruction represents from 2,000,000 cords of wood, whose value is from $7,000,000 to $8,000,000. It would seem that this might be saved "and given to the poor." But the poor will not take it, as attempted distribution has shown.

There is disinfectant and medicinal quality in the creosoted wooden ties. Perhaps some of our philanthropists can find a use for the old ones, particularly in connection with tuberculosis complaints. They are worthy a better use than that of the tramp's cooking camp.

Satisfy Yourself.

WILLIAM JOHNSTON in the "American Magazine," lays down the following rules for personal conduct, which if applied to railway service, would solve many of its daily problems:

"It is not what people say about you—it's what you are that counts. The one person in all this world whom you should aim to satisfy is yourself. You alone know yourself. Other people know your outward appearance, your actions, your deeds. You, and you alone, know your motives, your ambitions, your thoughts.

"Are you satisfied with yourself? It is your own fault if you are not. Are you satisfied that you are doing the best you can in your work, that you are making the most of your time? Are you confident that your conduct toward your family, your friends, your neighbors, your employer, can not be improved?

"Look yourself straight in the face this morning, in your mind's looking-glass. Ask yourself whether it is what people say about you or what you are that hurts. Analyze your own conduct in all matters.

"Put yourself in the other fellow's place and try to see your actions through his eyes. Imagine that you are your employer instead of yourself. Answer honestly whether, if he knew as much about yourself, he would discharge you or would raise your wages. If you do this conscientiously there are many things you will do differently.

"Remember this, too. Other people's opinion of you is based on your own opinion of yourself. Are you self-respecting? Other people will respect you. Are you truthful? The world will believe you. Are you honest? Everyone will trust you.

"But weigh yourself frequently. Weigh yourself carefully. Be certain that your own opinion of yourself is justified. Be satisfied with yourself."

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Mr. Barber on Government Ownership of Railways; A Rejoinder

By H. T. NEWCOMB,

OF THE WASHINGTON, D. C. BAR.

THE OUTLOOK, for July 19, 1913, contains an article written by Mr. O. C. Barber, proclaimed as the organizer of the "Match Trust," in which the author declares, in his first sentence, that—

> "Extravagance is the paramount American characteristic, not only individually but nationally,"

and proceeds to demonstrate, in nearly every succeeding sentence, that there is an extravagance of words as recognizable and as alluring to its victims as any extravagance of deeds. The latest annual report of the Statistician to the Interstate Commerce Commission gives the average capitalization per mile of American railways as $62,657 which, on the basis of 250,000 miles would show a total of $15,664,250,000; Mr. Barber states this aggregate, on page 616, as "nineteen billion dollars," and, again, on page 618, as "twenty billions." On page 617, Mr. Barber says—

> "* * * * during the last ten years the railways have * * * * paid nearly three billion dollars in dividends and had left nearly four billions of surplus."

The reports of the Interstate Commerce Commission show that in ten years, from 1901 to 1910, inclusive, the sum paid in dividends was $2,083,318,300 instead of "nearly three billion dollars" and that the entire accumulated surplus on hand on June 30, 1910, that is, not the surplus of the ten year period but that of all the years of operation, was $1,371,107,759 instead of "nearly four billions."

Such errors as these do not, however, constitute the justification for the present rejoinder. The task has been assumed in order to state a few of the funadmental considerations involved in the replacement of private by public railway ownership and management, so enthusiastically advocated by Mr. Barber. A careful winnowing of Mr. Barber's paper reveals the following which he regards as arguments for such a change. He favors Government railway ownership and management—

1. Because he conceives that railways are overcapitalized,
2. Because he thinks transportation costs could be reduced,
3. Because he believes there would be fewer accidents, and,
4. Because he is confident there would be no strikes.

ALLEGED OVERCAPITALIZATION.

It is difficult to understand the persistence of the erroneous belief that a railway can increase its receipts by increasing its liabilities. Capital securities, either shares or bonds, are liabilities

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and it is true that bonds call for regular interest payments. Hence, it is inconvenient for any railway to have a burden of improvidently incurred indebtedness, just as such indebtedness is burdensome to an individual. Take an example in the concrete. Most railway managers must envy the management of the Delaware, Lackawanna and Western, which is substantially without bonded debt and although capitalized at less than $43,000,000 could undoubtedly obtain three times that sum on very favorable terms should its shareholders choose to authorize the use of its high credit for purposes of improvement or expansion. But there is another aspect of even this situation. It is certainly questionable whether the general railway situation of the United States is better because the Lackawanna has hoarded its credit instead of conservatively utilizing it in providing for still higher efficiency and a more extended field of utility. Solvency is an economic asset which may be made to perform service—is it always well that it should, like the buried talent, remain sterile and unproductive?

Turning, however, to the opposite extreme, the improvident issue of promises to pay principal and interest, no one believes that John Smith can increase his wages as an artisan, by foolishly straining his credit with his grocer, or that any landlord can increase his rents by mortgaging the leased premises. Why then, should even an excessive issue of railway bonds be considered a certain or even possible claim to increased rail-

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way rates? And, if it is not effective in enforcing such a claim, what interest can the traveling or shipping public, as distinct from the investing public, have in the matter. The facts are not difficult to discover. Whoever listens to the assertion that railway rates are affected by capitalization would do well to compare the facts concerning the Delaware, Lackawanna and Western and the Erie railways. The latest available report of the Statistician to the Interstate Commerce Commission states the total par value of the shares and bonds of the former as $30,597,000 * and of the latter as $402,269,047. Per mile of line, the averages shown by the report are, for the Lackawanna, $128,214, and for the Erie, $259,897. But, during the year covered by the report, the Lackawanna paid out in dividends and interest the sum of $23,117,545 while the Erie paid no dividends and its interest payments aggregated $10,129,212. Thus with an aggregate par value of shares and bonds thirteen times as great as the Lackawanna, and a per mile capitalization averaging more than twice as much, the Erie paid to the owners of its securities less than half as much as was paid by the former. The combined dividends and interest paid in 1910 by the Lackawanna equalled 64.20 per cent of its gross operating receipts during the year, the interest paid by the non-dividend paying Erie amounted to but 21.70 per cent of its operating receipts. The following averages per mile show that, in this instance at least, the supposed influence of capitalization upon receipts does not exist.

	Delaware, Lackawanna and Western.	Erie.
Average par value of shares and bonds, per mile	$128,214	$259,897
Average payments in dividends and interest per mile operated	24,855	8,361

Also, the same authority shows that during 1910 the more highly capitalized Erie carried all its freight at an average charge of 6.26 mills per ton mile while the Lackawanna collected, on the average, 7.29 mills per ton mile, 16.45 per cent more. These results were reversed as to passengers, the Erie collecting an average of 14.89 mills and the Lackawanna 13.86 mills per passenger per mile. Or, turning to another section, let a similar comparison be made between the Illinois Central and the Atchison, Topeka and Santa Fe. The latter supports shares and bonds having an average par value per mile of $55,770, the former has an average of $115,064, more than twice as great. Yet in interest, rentals and dividends, the less capitalized system paid, in 1910, $3,710.59 per mile operated while the greater paid $3,336.28 per mile for the same purposes. And the average receipts of the Illinois Central per unit of service were, per passenger mile, 18.27 mills and per freight ton mile 5.89 mills, while the corresponding figures for the Atchison were 20.07 per passenger mile and 10.36 per ton mile. To those who do not refuse the instruction of facts these data ought to be conclusive.

Every schoolboy learns that only co-ordinate numbers can be added but apparently forgets the principle as soon as he begins to consider the railway problem. For it is as absurd to add the par values of stock of the Lackawanna and of the Erie or (say) the Missouri Pacific as it would be to add bales of cotton and bushels of barley. Yet to make up the $15,664,250,000 "total railway capitalization" it has been necessary to aggregate these par values and those of such equally incongruous items as the defaulted bonds of the Pere Marquette, the ten per cent stock of the Union Pacific, the collateral trust bonds of the New York Central, the depreciated shares of the St. Louis and San Francisco, and so on. Such figures are misleading at their worst and worthless at their best.

Mr. Barber is greatly in error, however, in imagining that Government ownership keeps down capitalization. The Government railways of New Zealand have a gauge of three and one half feet, and are inferior in every feature of construction and equipment to those of the United States. Yet the following is the progressive record of their capitalization which now stands at an average of $52,320 per mile of line.

	Miles.	Capitalization. Total.	Capitalization. Average per mile.
Year 1895	1,993	$74,689,976	$37,476
Increase from 1896 to 1900	111	6,574,434	59,229
Increase from 1901 to 1905	270	24,313,737	90,051
Increase from 1906 to 1910	343	33,139,913	96,618
Increase from 1910 to 1911	36	5,317,786	147,716
Year 1911	2,753	144,035,846	52,320

So Government ownership in New Zealand has resulted in an increase in average par values per mile of 39.61 per cent in sixteen years. The recent Socialist candidate for the governorship of New York has asserted (*Pearson's Magazine*, October, 1912, p. 93) that in New Zealand "there is no increase of capitalization except for the one item of building and equipping additional lines." If he is correct, it appears that Government ownership has brought the cost of narrow gauge lines, with inferior equipment, up to the enormous figure of $147,716 per mile.

At $147,716 per mile, the railways of the United States would be worth $36,929,000,000; their present capitalization is less than $16,000,000,000. Evidently there is nothing in the argument from capitalization to justify such a tremendous departure from methods approved by American experience as the substitution of Government railway ownership for private ownership or that of public management for private management plus public regulation.

Government Management Would Not Reduce Expenses.

It is difficult to argue with a prophet. Mr. Barber asserts that the expenses of the railway business would be reduced under Government ownership and, as he offers no evidence save this assertion in support of his claim, it is impossible to say that such evidence as he has produced does not exist. But one million dollars per day, $365,000,000 annually, is a vast sum, and if it is to be saved it ought to be possible to indicate some of the sources of the saving. The railway expenses of 1910, according to the Interstate Commerce Commission, were as follows:

Taxes $103,725,701

*There has been a subsequent increase of $12,000,000 in par value of stock, sold to shareholders at its face value.

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Operating Expenses:	
Paid to officers	37,448,770
Paid to employes other than officers	1,106,276,536
Other operating expenses	678,905,127
Capital Expenses:	
Interest on funded debt	370,092,222
Other interest	16,520,342
Dividends	293,836,863
Total	$2,606,805,561

It may be admitted that Government ownership would do away with the item of taxes but this would not be a saving for the sum thus lost to the Government revenues would have to be made up by taxation of other objects or in other forms. The railways are not over-officered nor do their officers receive excessive compensation; probably no one will contend that there could or ought to be any material diminution in the aggregates or in the rates of wages paid to employes of any sort. For twenty-five years operating expenses, other than wages and salaries, have been subjected to close comparative analysis by the Statistician to the Interstate Commerce Commission and for much more than that they have been scrutinized in the utmost detail by the ablest railway managers. To save $365,000,000 in this item would reduce it more than fifty per cent—the suggestion, without clear affirmative evidence of waste, is ridiculous.

Beyond this, the larger half of the $678,905,127, of railway operating expenses, not paid directly to railway labor goes to the workingmen engaged in the mining of ore, rolling of rails, building of cars, and the manufacture of other materials and supplies. Mr. Barber does not propose to socialize the production of all the commodities necessary to railway operation, and, even if he did, it is not supposed that he would recommend reductions in the wages of these workingmen.

The payments for use of capital, interest and dividends aggregate $680,449,427. This is five per cent on $13,608,988,540; if the Government could reduce the rate of interest to three and one half per cent without increasing the principal of the obligation, this payment could be cut to $476,314,599, a reduction of $204,134,828. But the best judgment of those skilled in financial operations is that this could not be accomplished. The condemnation price of the railways would probably approximate $20,000,000,000 or about twenty-five per cent more than their present capitalization and, even at three and one half per cent, the annual interest on this sum is $700,000,000 or more than the present aggregate earnings of railway capital. Moreover, the credit of the Federal Government, if it should attempt an eleven-fold increase in the public debt in order to finance railway nationalization, would not stand where it now stands but would become *the credit of the railways in the hands of the Government.* That is to say, the confidence of bond buyers would no longer be in the good faith of a solvent government pledged in support of a moderate national debt, but it would be fully understood that payment of the interest, to say nothing of the principal, of the vast new indebtedness, must depend essentially upon the financial success of government railway operation. A considerable rise in the rate of interest demanded on Government loans would therefore be inevitable.

Government Ownership Does Not Reduce Accidents.

The American accident record, in all lines of industry, is saddening beyond expression. So, indeed, is the accident record of every new or rapidly developing region or industry. The pressure of public demand for railway transportation, the impatience of public and employes with the rigid enforcement of regulations that while tending towards safety might seem to trench upon personal independence or temporarily to retard the movement of passengers or freight, the attitude of certain labor leaders and committees of labor organizations towards disciplinary changes in the force of employes, the refusal of legislators to penalize trespassing on railway tracks or infractions of rules intended to promote safety, all these have combined to produce an accident record that is not less than appalling. In 1911, the number of persons killed in the United States in accidents involving the movement of trains, cars or locomotives on steam railways was 9,057 of whom 5,284, or 53.07 per cent, were trespassers. The latter class of accidents can be reduced substantially to nothing whenever the legislatures of the several States will enact adequate penalties for unwarranted entrance upon railway rights of way. Responsibility for the remaining 46.93 per cent is less readily traced. The movement of trains is a continuous struggle with the inertia of inanimate Nature. To hurl five thousand tons along a steel track at high speed and maintain perfect safety may be attainable but the means for insuring it have not yet been discovered. Nevertheless, there are more accidents than present conditions justify and the reasons should be sought. Why, for example, is it that out of 356 passengers killed in 1911, no less than 214, or 60.11 per cent, were killed by other than train accidents—was not the far greater portion of these due to avoidable causes for which the victims themselves were responsible? Why were 292 "employes not on duty" killed, of whom only thirteen were killed in train accidents? In this connection it is well to quote a recent expression from Mr. D. F. Jurgenson, Engineer of the Minnesota Railroad and Warehouse Commission, who said:

> "No railways anywhere are better equipped with mechanical devices for safeguarding human life than are the railways of this country. Cars and locomotives of the most modern construction, equipped with air brakes of the most efficient design, are in general use. Highly perfected automatic signal systems designed to preclude the possibility of collisions are in use on many lines. Their use is being extended, although not as rapidly as might be. Yet, with all these mechanical measures, lives are snuffed out by the score because some human mind failed. With all our perfection in this direction it appears as though we encouraged carelessness through over-confidence in mechanical perfection. * * * *
>
> "What has been accomplished by Germany and other European countries in checkmating preventable accidents in railroad operation by making railroad employes amenable to the State for faithful attendance to and performance of their duties, might well be done in this country. Thus far, however, when effective disciplinary measures have been suggested as

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a remedy for human fallibility or carelessness in railroad operation, the difference in the sociological and political conditions existing here have been set forth as an insurmountable obstacle."—*Railway Age Gazette, January* 3, 1913.

One thing in regard to railway accidents, however, is fairly certain, namely, that, other things being equal, they are not diminished by Government ownership and management. The following table compares the number and ratio of fatal accidents during the latest years for which data are available on the government and private railways in the principal countries where both public and private ownership exist:

	Passengers killed.						Employees killed.			
	Railway mileage.		Per 100,000,000 passenger miles.				Number employed per employee killed.			
Country	Owned by government.	Private.	On government lines.	On Private lines.	On government lines.	On Private lines.	On government lines.	On Private lines.	On government lines.	On Private lines.
Austria	11,783	2,353	22	7	0.60	0.70	93	19	2,409	2,822
France(*)	5,546	19,610	66	5	3.15	.06	83	237	855	1,131
Sweden	2,717	5,735	2	3	.40	.71	21	11	1,188	1,867
Switzerland	1,705	1,238	12	0	.92	0	29	2	1,214	3,269
Germany	34,892	2,216	112	3	.48	.71	554	9	1,273	1,266

(*)Train accidents only.

The foregoing shows 214 fatal accidents to passengers and 780 to employes on 56,643 miles of Government owned railways and 18 such accidents to passengers and 278 to employes on 31,152 miles of privately owned railways in the same countries. It shows that passengers are relatively safer on the private lines in two of the five countries, without any substantial difference in favor of the Government lines in any of the others, and that employes are relatively safer on the private lines in four of the five countries, while in Germany the slight advantage of the Government lines is insignificant. If the United States is to adopt government ownership of railways it ought to be for some better reason than the false hope that it would reduce accidents.

Prevention of Strikes.

Strikes involve an interruption of business that is burdensome and may become disastrous and they express the failure, on one side or the other, sometimes on both, of fair and reasonable dealing. In the railway field of the United States they are frequently threatened but seldom occur. Practical American statesmanship has evolved a method of prevention, in the Erdman law and its very recent successor, the Newlands law, which has operated successfully for several decades. While these statutes have been operating effectively there have been serious strikes on the Government owned railways of Belgium and Italy.

The prevention of strikes is important but it is far more important that the method of prevention shall not impair the liberty of any individual than that the method should invariably succeed. The American method of prevention is that of conciliation, mediation, concession, and voluntary arbitration; the method of Government ownership is to rely upon the compulsory and the military power of the State. The right of the workman to refuse to work, for any reason satisfactory to himself, is the foundation of the wages system and the ultimate distinction between free labor and slave labor. This unqualified right to refuse to work ceases to exist the moment the State becomes the employer and the bare legal right is sure to be modified and even withdrawn whenever the Government is brought face to face with a cessation of its activities. Hence, railway employes ought unalterably to oppose Government ownership as certain, sooner or later, to impair the quality of their liberty. Under Government railway ownership in New Zealand resort has been had to so-called "compulsory" arbitration. If a strike is threatened the Government has merely to appeal to the Court of Arbitration, that is to itself in one of its manifestations, and that appeal, wholly regardless of the merits of the controversy, of its own force, makes the proposed strike unlawful and requires the employes to remain at work, though they may regard the conditions of employment as unreasonable, humiliating and utterly obnoxious. Then comes the arbitration and award and, according to Professor Frank Parsons:

> "After the award the law does not compel the employer to keep on doing business, or the employes to keep on working, but if they do keep on working and doing business in that trade, it must be in harmony with the terms of that decision."—*The Story of New Zealand, p.* 323.

The engineer, who in early manhood toiled laboriously upward until his skill and experience won the right to have an engine placed in his charge, after having spent the better part of a lifetime at the throttle, is called into court, in a proceeding in which the Government, his employer, is complainant, judge and marshal, and, as the result, is told that he must work on the Government-sanctioned terms, or, in his old age, find another occupation. And Professor Parsons adds—

> "And the stoppage, if one should occur, must be *bona fide*—anything in the nature of a strike or lockout to escape the award would be instantly checked by the court."—*Ibid, p.* 323.

Contrast with the foregoing, the following from Mr. John Mitchell, one of the most brilliant of American leaders of organized labor—

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"We have heard much of late of the right to work. * * * * There is another right, however, as sacred and as inalienable, namely, the right not to work, the right to desist from work either singly or concertedly, when conditions are such as to render this action advisable and justifiable."—*Organized Labor; Its Problems, Purposes and Ideals, p.* 312.

It is most fortunate that the American Government, never having been subjected to the temptation of looking upon a threatened strike as an intolerable attack upon itself, has been able to contrive a method that is just as effective as that of New Zealand in preventing railway strikes, but that leaves every employe as free as he was before. But the American method would be of no avail under Government ownership.

Conclusion.

The writer is no irreconcilable opponent of Government ownership of railways for the United States. All that is here urged is that the arguments on both sides should be considered and the superficial and spurious rejected. No one may doubt that there now exists, in this country, a considerable sentiment in favor of public ownership and operation. Although at present unorganized, this sentiment is not unlikely soon to take form in an organized demand which would constitute a principal political issue. Hence discussion of the subject should be welcomed. Plausible arguments in favor of such a change are not wanting, although they may be insufficient and inconclusive. Certainly there is much to be said in favor of a union of control and responsibility, and, if it be true, as has been claimed, that the Government has assumed all the principal and effective powers of ownership with regard to charges, wages, and methods, but without assuming any of the responsibilities of ownership which relate to the solvency of the properties, many will conclude that the ownership might well be reunited with the control. In addition, there are two strong classes whose support of such a change may be predicted. They are (first) those perennial enthusiasts of reformation who regard every imperfection of an existing system as *proof* that *any* proposed change would be an improvement and (second) that large and influential body of conservative investors (including the owners of insurance policies and depositors in savings banks) who would gladly accept Government bonds backed by the power of taxation in exchange for evidences of railway ownership the security of which they now believe to be threatened by an increasing rigor of regulation and an augmented vigor in taxation. Consequently, there is a real danger that the United States may rush headlong to the adoption of a system that has not been over-successful even under more favorable conditions. The present is the time in which carefully to scrutinize the arguments that are made and will be made by those who favor the change.

Are American Railroads Overcapitalized?*

By Alba B. Johnson,

President of the Baldwin Locomotive Works.

NOTHING is to be gained by issuing a clean bill of health to all roads since the discovery of the steam engine. If we are asked "Have American railway companies issued stock as a bonus with bonds?" the answer is "Yes; because it was then necessary to attract investors and was consistent with the business standards of the time; the practice was once general. Moreover, in some consolidations securities were issued to a par value greater than that of the combined issues previously outstanding; also, directors have been known to operate construction companies and to issue stock to buy property from themselves."

Facts are facts, and converts are not to be won by denying them. Charles P. Neill, until recently Government mediator in railway labor disputes, says that whenever he found the employer indignant, with reason, and reluctant to arbitrate, he began the acquaintance by acknowledging that it was "an outrage." The belligerent was at once his friend, and inquired, "What do you advise me to do?" "Yield!" said the mediator, and compromise or arbitration followed. A frank admission of what has been done in the past with regard to capitalization, leaving judgment upon it to individual temperament and to Heaven, is the first step toward getting together and seeing what, if anything, should now be done about it.

If, then, as viewed by some, construction companies ought not to have been employed, or em-

Alba B. Johnson.

*From *The Saturday Evening Post.*

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ployed on other terms, and the stock bonuses ought not to have been given, and the consolidations should have been accomplished, if at all, without increase of capital obligations, how serious have been the results?

Receiverships have wiped out millions of the original capitalization. There were many receiverships and many drastic reorganizations of railroads prior to 1894, but during that year 210 railroads, or twenty per cent of all the railroads in the United States, were in the hands of receivers and their reorganization was later effected by the wholesale scaling down of their original capitalization. There are no statistics available to show whether in the aggregate this was equivalent to squeezing out all the water originally contained; but many of the best informed statisticians believe this to have been the case.

Earnings which could have been paid to stockholders, as is the custom in some other countries, have on American roads been put into the property without increase of capitalization. The old rule of the Pennsylvania Railroad Company was a dollar expended for improvements for each dollar disbursed in dividends to stockholders, and for years this practice was emulated by many of the most prosperous and conservative roads. In the twenty years, 1891-1910, the amount expended for terminal improvements and charged to income account aggregated no less than $459,839,061. The rigid accounting system of the Interstate Commerce Commission was not put into effect until the fiscal year 1908, and in the years before that large sums were expended on the property and charged to operating expenses which now are required to be assigned to capital account.

Stock again, instead of being given as a bonus "representing nothing but blue sky," has to a large amount been sold for cash above par. The economist, Floyd W. Mundy, cites three cases, the New York Central, Baltimore and Ohio, and Pennsylvania, which, in 1913, he estimates had a total capital stock of $934,242,088. Of this, $547,770,053 was issued since 1900, upon which the cash realized was $620,788,035. Three of our largest roads, he means, got an average of more than eight per cent premium on at least sixty-one per cent of their total stock now outstanding. Among other effects of this policy it has served in the case of these companies to wipe out, many times over, any increases of capitalization through unearned stock dividends.

As a result of these two sets of forces—the sins of the fathers and the penance of the sons—is the burden of interest and dividends sufficiently excessive to require a readjustment of that situation before the matter of reinforcing railway credit and reinvigorating railway progress is undertaken?

Let us seek an answer by sweeping away the cobwebs of par value and per mile of line, which may mean anything or nothing, and applying a test, perhaps rarely used, but a test fundamental, comprehensive and conclusive. Let us ask: Are payments to capital excessive? There happens to be one foreign country, Great Britain, which has a considerable railway system, privately owned and operated, and yielding statistics comparable with those for the United States. How does our burden of payments to stockholders and bondholders compare with the British? What share of the receipts goes into dividends and interest on funded debt? The figures are as follows:

RAILWAY RECEIPTS AND PAYMENTS TO CAPITAL.

United Kingdom, 1911.

Receipts (returns to British Board of Trade, p. xix)	£127,109,570
Total capital (do, p. xxiv)	1,324,018,361
Average rate interest and dividends (do, p. xxvii)	3.59 per cent.
Amount of interest and dividends (computed from above)	£47,532,259

United States, 1910.

Operating revenue (Interstate Commerce Commission Statistics of Railways, p. 70)	$2,750,667,435
Net revenue from outside operations (do, p. 70)	2,225,455
Total receipts	$2,752,892,890
Net interest (do, p. 69)	370,092,222
Net dividends (do, p. 69)	293,836,863
Interest and dividends	$663,929,085

Comparison.

Interest and dividends percentage of receipts:	
United Kingdom	37.3
United States	24.1

If capital had received from American railways the British proportion of total receipts, 37.3 per cent, instead of 24.1 per cent, as was the fact, the American distribution of interest and dividends in 1910 would have been $364,772,072 more than it actually was.

Does this test of whether capitalization is or is not excessive afford an overwhelming motive for staying railroad progress in this country, while returns to owners and creditors of our roads are being scaled down?

To many, like the attorney above mentioned who wanted to call Mr. Adams and ask him about a specific road averages for all the lines of each country compared may not be conclusive. To these, perhaps, one fact in the hand is worth two in the bush. Average statistics is the bush, and the particular instance known to him is the bird in hand. How can we tell but that a considerable number of the principal American lines are carrying too heavy a burden of interest and dividend disbursements? Let us examine for his benefit an Eastern and a Western road which have been most criticized—Alton and Erie. What are the figures? Here they are:

NET DIVIDEND AND INTEREST PERCENTAGE OF RECEIPTS.

United Kingdom (1911)	37.3
United States (1910)	24.1
Alton (1910)	25.8
Erie (1910)	17.3

These figures do not excuse wrongdoing, if wrongdoing there has been, but on the other hand do they furnish reason for blocking American railway leadership as a whole in the development of American industry, commerce, agriculture and territory?

Par value of capitalization should be mentioned, lest the omission be misintepreted. Par value affords no secure basis of comparison. The usual

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method is to assign capital per mile of line. This is faulty, because it leaves unanswered the question, What is a mile of line? A mile of line on an average in Texas has only 58.7 per cent as many lines of track as has a mile of line in the statistical group situated in New York, New Jersey, Pennsylvania, Delaware and Maryland, only 23.2 per cent as many locomotives and only 15.7 per cent as many cars. So of terminal cost figures; the per-mile-of-line basis means little unless we know how many miles of line there are per terminal. If two roads have each two terminals, worth $1,000,000 apiece, and one is 1,000 miles long while the other is but 500, then the 1,000-mile line has capitalization charged to its two terminals of $2,000,000, or $2,000 per mile of line, while the $500-mile road has a capitalization charged to its two terminals of $2,000,000, or $4,000 per mile of line. Cost of road construction again may be as low as $20,000 a mile on the prairie and as high as $250,000 a mile through the mountains, or $1,000,000 a mile through the city. For this and other reasons comparison of capitalization is unsatisfactory. The facts, however, for what they are worth, are creditable to American railways by such a margin as fairly to raise the question whether any conceivable allowance for difference in conditions would offset it.

The Interstate Commerce Commission, by eliminating duplications, finds as the average net capitalization outstanding in the hands of the public a figure which is given in Statistics of Railways for 1910, page 52, as $62,657 per mile of line. This compares as follows with capitalization in the principal foreign countries, the reduction to terms of American money, in view of the amounts involved, being figured on the precise basis laid down by the United States Bureau of Standards—$4.8665 to the pound sterling, 19.3 cents to the franc, 23.8 cents to the mark—and reckoning 0.62137 mile to the kilometer:

	Amount.	Excess Over U. S. (Per Ct.)
United States, 1910 (Interstate Commerce Commission Statistics of Railways, p. 52)	$62,657	
Germany, 1911 (Statistik der Im Betriebe Benefindlichen Eisenbahnen Deutschlands, p. 13) ..	113,855	81.7
France, 1910 (Statistique des Chemins de Fer Francais, pp. 334, 335)	144,683	130.9
United Kingdom, 1911 (Returns to British Board of Trade, p. xxiv)	275,156	339.1
England and Wales, 1911 (Returns British Board of Trade, p. xxiv.)	328,415	424.1

These figures, showing an excess over American capitalization ranging from 81.7 per cent in Germany to 424.1 per cent in England and Wales, are averages for all roads. "Net capitalization," on the basis used by the Interstate Commerce Commission for all the roads consolidated in one account, is not easy to compute for individual American roads, owing to the interweaving network of subsidiary corporations. To deduct from the total for the given road the securities of other roads held in its treasury still leaves a sum higher than the "net" actually is, because there would remain to be deducted the securities held in the treasury of every subsidiary, and so on in an all but endless chain. But consider the primary elimination, deducting from the total for the parent corporation only those securities of other companies directly held by it. This shows that there is no American road of considerable size which is not capitalized at less than the British average. Of American roads two hundred or more miles long, that having the highest gross capitalization per mile is the Erie. Its net figure, after making the partial deduction above defined, is $239,573. The United Kingdom shows an average for all lines 14.9 per cent higher than the Erie; England and Wales 37.1 per cent higher. The Alton net, thus figured, stands at $129,413. The French average for all roads shows 11.7 per cent higher than the Alton; United Kingdom 112.6 per cent, England and Wales 153.7 per cent higher than the Alton.

Suppose it were the railways of the United States instead of the European lines which showed excess of capitalization per mile of line 81.7, 130.9, 339.1, 424.1 per cent; would not the country visit condemnation upon our roads in good round terms? It is not good form in the United States to applaud railways. I would not suggest the indecorum of Americans throwing up hats over their impressive accomplishment in keeping down the capitalization charges on transportation; but may not one reasonably ask whether "over-capitalization," according to world standards, has really been so flagrant in the United States as to constitute a national emergency? To meet it, ought the replenishment of equipment and the building of terminals for the accommodation of freight to wait?

Is the question of capitalization, then, as related to actual investment, to be ignored and railway managers left foot-free? The problem is receiving assiduous attention. Railways operating five hundred miles or more of lines which pass through States having statutes for the regulation of railway securities aggregate 198,854 miles, which is 94.6 per cent of the total in the five-hundred-mile class. The Interstate Commerce Commission is at this moment, under mandate of Congress, inquiring into railway capitalization.

Is capitalization, in view of these elaborate and concerted efforts to regulate it, a problem which absolutely must be solved as a condition precedent to revision of freight rates, stiffening of railway credit and provision for handling the expanding business of a great and growing country?

Even when instrumentalities for the regulation of security issues shall have been perfected, how certain is it that capitalization, or the return thereon, has very much to do with freight rates or can be made to have? The Baltimore and Ohio, the Pennsylvania, the Erie and the New York Central operate for the most part under a rate structure, the basis of which is the through rate between New York and Chicago, identical for all four. This rate was fixed in competition but once established it has been accepted as a standard of reasonableness, and rates between points where there is no competition are automatically influenced by that rate through custom and through the long-and-short-haul clause of the Interstate Commerce Act. The whole population served by these roads is, therefore, paying for its transportation at what may be termed the same rates. Assuming that the valuation now under way shall provide a means of judging accurately the cost of the properties, what prospect is there that these roads will prove to be "worth" even approximately the same? One has

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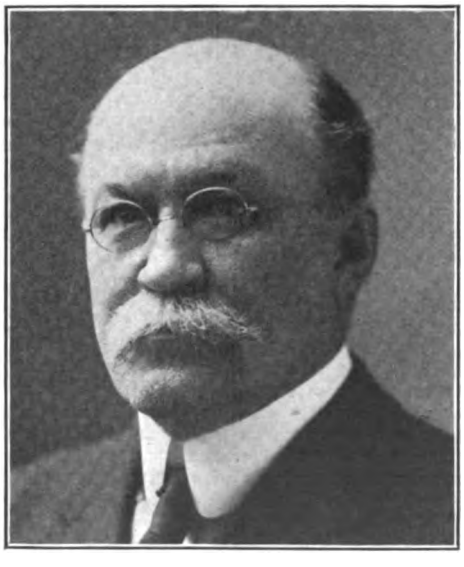
enormously expensive terminals in Chicago and New York, another not; one passes through many large cities where land is valuable and where elevated, depressed, tunnel and other costly structures have been frequent, another less so; one had to be carried over or under mountains, another traverses mainly a level country. Measuring the actual cost of the roads to the public by the sure test of the percentage of receipts paid to owners and creditors we find that the New York Central distributed in 1910 in net interest on funded debt and in dividends 11.2 per cent of receipts; Erie, 17.3 per cent; Pennsylvania, 13 per cent, and Baltimore and Ohio, 23 per cent. What, in the light of these figures, can capitalization have to do with freight rates?

The Interstate Commerce Commission, as it observed in the Eastern Trunk Line rate advance case, handed down through Commissioner Prouty, "is called upon to deal with rates as they exist, and in so doing we ordinarily consider them, not from the revenue standpoint, but rather from the commercial and traffic standpoint." He went on to declare, discussing the Baltimore and Ohio, Pennsylvania and New York Central: "Under rates reasonable for these three systems there may be lines whose earningss will be extravagant, but that is their good fortune. There may be lines which cannot make sufficient earnings, but that is their misfortune." The need of the average road was adopted by the Commission as the test. Anxious citizens, who come to see that poverty for their railway means a handicap to those it serves, may inquire what an average road is. They will at least want the door left open for making the rate level adequate for the particular road on which they depend.

Possibly we have been splitting hairs. A new railway question confronts us requiring statesmanship for its solution. When it becomes clear to enough people that the railroads have before them, in enlargement of facilities and provision for safety, a task which must be done, and which cannot be done with money now available, the Interstate Commerce Commission will have before it the demand that this work be accomplished and that conditions be made such that the roads can obtain the capital. No single adjustment for one territory or for one year will suffice. What is required is a permanent policy of protection to railway revenues.

It is to be hoped this may become a national policy. To this end business men may well study the question of capitalization for themselves. Should they perceive that it is largely irrelevant to freight rates let them frankly admit it, they and their representatives in the legislative councils of States and Nations.

Relation of the Press to the Railways



W. W. FINLEY.
President, Southern Railway.

IN a recent address before the North Carolina Press Association at Asheville, N. C., President W. W. Finley, of the Southern Railway Company, spoke on the above topic, calling particular attention to the value of co-operation between the press and the railways in community development. He pointed out that their interests were in many ways substantially identical in that they were both interested in attracting additional population and a higher average level of general prosperity. President Finley asserted that while they were thus natural allies, it did not follow that there should not be fair criticisms of the railways, but that such criticism should take account of the economic conditions under which these agencies must work, and should be of a helpful and educational character rather than tending to create unreasoning prejudice.

He pointed out that largely because the railroad must maintain business relations with a large number of widely separated communities, and because it is impracticable for its principal officers to maintain relations of personal acquaintanceship with all of the people along its lines, it is easy to excite prejudice against it. Its position therefore, can only be secured when the economic conditions surrounding its operation and the importance of its functions to development and to the enlargement of opportunity are appreciated by the people of the community which it serves. This appreciation is dependent upon enlightened citizenship and, as President Finley pointed out, the press has a moral responsibility in this connection as it is a recognized and influential agency in the molding of public opinion.

Continuing, President Finley said in part:

"In our modern system of civilization no community which lives to itself can prosper. Transportation is an essential factor to profitable production, and, economically speaking, production is not complete until goods are put in a position for consumption. It would be the height of folly for any man or set of men to establish a factory and pile goods up in a warehouse in a locality from

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which it would be impossible to market them. Goods stored in a warehouse in this way would be without value. It is only when they can be moved to localities in which they are in demand that they have value. The railways are thus, in a real sense, creators of value and are an indispensable part of the producing equipment of every community and of every farmer and manufacturer in it, and it would be just as logical to carry on a campaign of unjust criticism against manufacturing enterprises and farmers as against the railways. The editor, being in constant touch with the news of the world, is in a position to take an exceptionally broad view of the relations of his own locality to other parts of the United States and to foreign countries. He knows, for instance, that cotton grown in a North Carolina field and manufactured in a North Carolina mill may reach the final consumer in a remote part of the United States or in some far off village in the interior of China or of Central Africa. He can realize that, without efficient railway service to the domestic market and to the seaports, neither the farmer nor the cotton manufacturer could prosper. Illustrations such as this might be multiplied indefinitely and it might further be pointed out that the railways of the United States are themselves large consumers of an almost infinite variety of materials and supplies and afford employment directly and indirectly to millions of our fellow citizens whose wages find their way into local channels of trade and contribute to the general prosperity of every community.

"In considering the present relations of the railways to the public, we should not be unmindful of the fact that there was a period in the history of the United States when the railways were appealed to on patriotic grounds to support principles believed to be for the best interests of the country. Under the higher standards of the present day such participation in politics is no longer required or supported by public opinion, but it is still the right of the railways, just as of any other business enterprise or individual citizen, to present their cause fully and freely before courts, administrative tribunals, legislatures, and the bar of public opinion. Enlightened public opinion in the United States will not justify the relegation of the railways to the status of the Jew in England in the Middle Ages, when, as we read in Madoxe's History of the Exchequer: "Josce Quarterbuch gave forty marks that his son Hakelin might be dealt with according to justice"; and "Jurnet of Norwich, gave 1,800 marks that he might reside in England with the King's good will."

"The railways are asking for no special favors. They ask only that their importance in the development of the country and that the interest which each individual has in their efficiency shall be frankly recognized. They ask that differences which may arise between them and individuals or communities shall be subjects of full and free conference to be adjusted in accordance with sound business principles, or that, failing such adjustment, they shall be adjudicated by the tribunals constituted by law.

"In what I have said I have endeavored to outline the condition which I believe to be necessary to the most effective co-operation between the press and the railways for community development. Such co-operation is essential to the fullest development and prosperity of any community. Intelligence and transportation are fundamental factors in our present-day civilization. It is the function of the press to disseminate the first and of the railways to provide the second."

Some Aspects of the Railway Problem

IN a recent issue of the Proceedings of the Engineers' Club of Philadelphia, Lieutenant Colonel J. E. Kuhn, of the Corps of Engineers, presented a paper on "Some Aspects of the Subject of Transportation." After dealing with the question as a whole, largely from a historical point of view, he has the following to say with regard to the present day railway situation, and the possibilities for greater economy and efficiency:

"In 1910, the railroads of the United States were equipped with 59,000 locomotives 2,300,000 cars, and employed 1,700,000 people in their service. Their outstanding capital was 18,000 millions of dollars, and their gross revenues 2,750 millions of dollars, which amounts to an average annual payment of $30 for each inhabitant for railway transportation. Successive economies in operation and administration, as well as increased volume of traffic, have reduced transportation charges to an astonishingly low figure, which has been maintained for a long period notwithstanding increasing wages, higher priced materials and increased taxes. The average freight rate of 20.9 mills per ton mile which obtained in 1865 fell steadily until in 1888 it reached the figure of 7.7 mills per ton mile, a reduction of nearly two thirds in twenty-three years. Since 1888, the average ton mile freight has remained practically stationary, being given as 7.48 mills for 1911 in Poor's Manual.

"The fact that railway management has been able to maintain freight rates in the face of the marked rise in prices of labor and material, and still pay dividends, is no mean tribute to the wisdom, energy and ability of the officials.

"Since 1890, most of the trunk line railroads have practically reconstructed their systems. Heavy expenditures, both of capital and of surplus earnings, have been invested in reducing curvature and grades, rebuilding bridges, supplying heavier equipments and in improving terminal facilities, all of which have conduced to economies in operating expenses and have enabled the railroads to maintain the present low rates. The question of greatest concern to the public at the present moment is whether we may look for a still further reduction of freight rates. On the basis of the traffic reported for 1910, a reduction of one mill in the average ton mile freight rate would effect a saving of $255,000,000 annually to the public. In view of the world-wide rise in prices, it seems hardly possible that there will be any material reduction in the cost of railway transportation. In fact, the immediate future threatens an increase of freight rates, as evidenced

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by a number of applications to the Interstate Commerce Commission with this object in view.

"That further economies in railroad transportation are still practicable cannot be questioned. While we appear to have about reached the economical limit of reduction in train resistance, with our present system of track and rolling stock, there are still possibilities of considerable economies in the matter of train operation and terminal expenses. In 1880, the average freight train load was only 129 tons. In 1910, this had increased to about 350 tons. Considering the power of the modern locomotive to haul heavy loads, there is still room for considerable improvement in train loads with resultant economy. Further improvement in car capacity in comparison with car weights may also be looked for. At present freight cars have a rated capacity of from 2 to 2½ times their weight, which means that even with fully loaded cars about one third of the train is tare weight, bringing no revenue. The Norfolk and Western Railway has recently put into service a coal car of 200,000 pounds capacity, weighing 62,500 pounds, giving a ratio of 3.2 of capacity to weight. As indicating the possibilities of train loads, it may be mentioned that about a year ago a single Mallet locomotive hauled a total load of 9,120 tons on the Virginian Railway, of which 6,600 tons was paying freight. The train consisted of 120 loaded coal cars containing 55 tons each, and the haul of 120 miles was made at an average running speed of 15 miles per hour.

"In general the larger the container, the greater the proportion of the net weight of contents. Unfortunately, limitation of clearances and stability with the present gauge have placed a limit upon the height and width of cars, and the increase of but one linear dimension will not have any very marked effect in improving the ratio between net and tare weights of freight car loads. In this connection it is open to argument whether a broader gauge than standard, permitting the use of larger cars and heavier loads, with shorter trains, would not afford more economical transportation. Were it a matter only of long haul through traffic, there could be no question as to the superiority of a broader gauge, but considering transportation as a whole, the unsuitability of unduly large equipment for feeder lines and the advantage of an interchange of cars, the present standard gauge is perhaps not far wrong.

"In the matter of efficiency of freight car equipment, much remains to be desired. In 1890, statistics of 1,000,000 freight cars in service showed that the average daily distance moved was only from 17 to 25 miles, a two hours' run. In a recent article by the General Superintendent of Transportation of the Illinois Central Railroad, there appears to have been but little improvement in this particular, the average movement of all freight cars on that line being but 27 miles per day. The records showed that as an average for each month, 13 days were spent in loading and unloading, 3½ days in moving, and 13½ days standing. Even a slight increase in the daily car mileage would result in large economies, both in first cost of equipment saved, and increased revenue from equipment in use. This is a question of operation and terminal facilities, which constitute the chief fields for the practice of further economies. In comparison with haulage charges the terminal freight charges in large cities are unduly high. Congested freight stations, antiquated methods of loading and unloading cars and high cost of land are laying a heavy embargo on transportation to and from the largest cities. To remedy these conditions will call for heavy expenditures, but unless terminal facilities keep growth with the ever increasing volume on tonnage the traffic capacity of the railroads will soon attain its limit, and this long before track capacity shall have been reached. Since 1890, railroad mileage has increased 50 per cent, while the ton mileage has increased 400 per cent, and the density of traffic is susceptible of still further increases, but only on condition that freight terminal facilities and the efficiency of freight equipment be increased correspondingly.

"Whether we may ever expect any radical change in track construction is problematical. Systems of construction like the mono-rail, overhead and gyroscopic, or the sliding railway exhibited at Paris in 1889, afford promising possibilities in the way of reducing tractive resistances, but the cost of their installation has so far prevented any economical results. The question of a change of motive power, from steam to electricity is an open one. For city terminals electricity has certain advantages which have led to several notable installations, and there are indications of its extension to main line traffic where hydro-electric plants offer attractive rates for power. For the time being the question of electricity or steam is more a question of convenience than of economy, and we may expect the steam locomotive to hold its own for some time in the future. To sum up railroad transportation, further improvements in haulage costs will probably not be material, but in the matter of operation and of terminal charges there is still room for important economies."

The Reins to Those Who can Drive—A Plea for Saner Railroad Regulation

By Howard Elliott.

Manager's Office, Salt Lake Route, Los Angeles.

THIS article is written for the benefit of one man. You see him every day. On the car to the office this morning he sat beside you. You noticed that he was neatly dressed, of dignified bearing, and that he was reading a magazine of public opinion on current events. You could tell by his appearance that he was a man of intelligence and culture, one of those whom we

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class as desirable citizens, neither overeducated nor ignorant, not a radical nor a conservative, neither wealthy nor poor, not seeking publicity nor unduly modest, neither overzealous in religion nor a scoffer at the pious and devout, not so aristocratic as to be snobbish nor so democratic as to be careless of his associates—in fact, he impressed you as one of those whole-souled creatures who is content to "live in his house by the side of the road and be a friend to man," who is the bulwark of our institutions, and upon whom rests the perpetuity of the Government under which we live. His name? He is called the "Average Man," the "Representative Citizen," and with respect to his attitude on public questions, the "Man Up a Tree."

The Representative Citizen observes, as he moves among his fellows, that one of the most popular subjects of discussion relates to railroads, and he is posted on those phases of the question usually featured in the press. He reads the accounts of wrecks and notes the nation-wide demand for greater safeguards. He reads some of the decisions of the railway commissions, particularly those affecting his own immediate interests. He has read about the 28-hour law for stock and the 16-hour law for men. He remembers vividly the account of an interview with a famous railroad chief who is said to have remarked, "The public be damned." He recalls clearly the testimony of a certain freight agent to the effect that rates were made on the basis of all that the traffic will bear. He shares the opinion that railroads are grossly overcapitalized and that he is paying tribute to them in order to maintain fictitious values. He knows, too, about the evils of rebating, for has he not himself, before the passage of the Elkins bill, been a recipient of such favors, and did he not regard it as right and proper that the railroads should follow the Biblical admonition, "It is more blessed to give than to receive"? Indeed, he is "loaded" with information in regard to railroads, and has his own notions as to the best methods of financing and operating them.

Of his own business he has made a profound study and a signal success. His associates know and appreciate the value of his experience and consider themselves fortunate in having with them a man of such sound wisdom and discretion. To him they go for counsel. But his knowledge of other businesses—and this includes the railroad business—has been gained not from any actual experience, but from what he has seen, heard and read, and railroad men do not come to him for advice.

With his information on the railroad question has come much misinformation. Most of what he knows has come from reading articles in the daily papers and monthly magazines which were written by men who, like himself, had seen no service on the railroad. He has seen the same arguments against railroads reiterated so often that he has come to the conclusion that the dense volume of smoke is indicative of the presence of fire. In spite of his inherent belief in fair play, these articles have created a pronounced prejudice against the railways, because he has not seen the arguments refuted by railroad men, and he considers that silence is equivalent to acquiescence. When occasionally they do speak, he believes them biased and incapable of telling the truth. Whether or not they know what the truth is he considers of secondary importance, and while he would keenly resent any imputation of unfitness or insincerity so far as he and his business are concerned, he thinks it but natural that in seeking information on the railway problem he should go not to the fountain heads of knowledge, the railroad officials, but to others whose ideas are purely theoretical, and who give him information some of which is right, much of which is incomplete, and most of which is false. Are his ideas about his own business supported by any such foundation and superstructure as this?

The Man Up a Tree does not know that the uncomplimentary reference to the public which is accredited to Vanderbilt was probably never uttered, but was a distorted report of a disgruntled reporter. He does not know that the general freight agent who testified as to how rates were constructed did not say, "All that the traffic will bear," but did say, "What the traffic will bear," meaning that a rate was applied which would cause the traffic to move freely and leave a profit for both the shipper and consignee. He referred not only to the maximum but to the minimum, and the definition is still considered an excellent one. The Man Up a Tree does not know that the railways of the United States could not be duplicated for their present capitalization, and that capitalization has no appreciable connection with rates, nor rates with the cost of living. He does not know, and he does not ask railroad men to tell him.

The Man Up a Tree regards the regulation of railroads by Governmental authority as a distinct forward step in the march of civilization. In the light of the knowledge which he possesses, he is satisfied not only that such regulation is proper, but that without it the nation's business would be completely dominated by the transportation interests, and the many exploited for the benefit of the few. He believes, of course, in the principle of a square deal, and is willing to admit that it applies even to railroads. But he believes that under governmental supervision the roads are prospering and will continue to thrive. He reads about the enormous gross income of railroads, and the unprecedented crop movement, and he figures that if railroads are not making money under these conditions it is due to inefficient management of the properties themselves.

The Man Up a Tree thinks that instead of curtailing the powers of the commissions they should be broadened until railroad men shall be so impressed with the idea that they are public servants that they will—like the serfs of old—prostrate themselves and bare their backs for the lash imposed by their masters. They must be taught, says the Man Up a Tree, that we, not they, are the arbiters of their destiny.

Mr. Average Man, methinks railroad managers have learned their lesson and learned it well. Who knows better than they, that their powers are limited—that their business is being control-

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led by others, and that while they have the responsibility without the authority the commissions maintain the authority without the responsibility. The managers need no further punishment to make them alive to the duties of their positions. But it should be remembered that the Supreme Court of the United States has said: "The public is in no proper sense a general manager." Evidently the court of last resort in this country is not in entire accord with the trend that events have been taking.

Mr. Representative Citizen, I should like to present to you a new idea, and that is that the public consider itself the vice-president of the railways. The vice-president has greater authority than the general manager. To him the manager reports. Surely this suggestion should be received with open arms. But if the public conducts itself as most vice-presidents in charge of operation do, the general manager will have nothing to fear. Nor does this invite the inference that the ordinary vice-president is a figurehead. Far from it. He is actively engaged in the operation of the road.

But let us see how the vice-president acts with respect to the general manager. Does he show his authority by vetoing everything the general manager suggests? I venture the assertion that nine matters out of ten that are passed up to the vice-president are carried out exactly as the general manager has recommended. Yet there is no question about his higher authority, and the fact that he agrees with the general manager does not lessen his control over him or the respect which the general manager entertains for his superior. The vice-president figures, and rightly so, that the road is governed best which is governed least, and that if the general manager is not running the road properly he should be removed, that the way to produce results is not to take the lines out of his hands, but to give him the reins. He can drive. Let him.

Now, Mr. Man Up a Tree, in your capacity as vice-president you know that your interests and those of the railroad are identical. Your purpose is to produce good service at reasonable rates and with profit to the stockholders—such profit as they have a right to expect from an investment in any legitimate enterprise. You know that you can make a good showing only so long as you earn a dollar by spending less than that amount, and that if reports show that the operating ratio is continually going up, you must do something to stem the tide and insure the solvency of the property. As a business man you know that there are only two ways of making a profit, either reduce the cost of production or increase the selling price, and if you have convinced yourself (as many vice-presidents have already) that the cost of production cannot be further reduced, then you owe it to the road of which you are an officer to adopt the other alternative, and raise the rates. And remember, this is something which you can do, and which the general manager, under present conditions, cannot do. Here is one method by which you may show that your authority is superior to that of the general manager, and which will inure to the benefit not only of the stockholders, but also of the country at large whom you represent in the management.

As a vice-president you deal directly with the general manager. Do you see any real necessity of interposing a "go-between," a "middle-man" to represent you in your negotiations with the general manager? It will add to the cost of superintendence, and the stockholders will be apt to say that the road is topheavy with supervision.

Your relations with the general manager can be made perfectly harmonious, and it would only "muss up the water" to appoint an intermediary. Yet you have in nearly every State in the Union (Utah and Wyoming are the exceptions) appointed such a "fifth wheel," and have so far disregarded all rules of propriety and precedent, you have to such an extent gone "contrary to established customs" as to select men who never spent a day in the railroad business and give them authority over the general manager.

And the strangest part of it is that you try to defend this system, herald it as an unqualified success, point to it with pride, yet you do not extend it to any other business which is supervised by an appointive body. There are boards of medical examiners, dental, law, pharmacy and insurance. Do you appoint insurance men to serve on boards of pharmacy, or druggists to comprise the insurance commission? Would you have much respect for a medical board composed of lawyers or a board of law examiners made up of doctors?

But the policy you reject in those appointments you employ with respect to railroads—a greater science than any of the others—for the naked fact remains that with a very few exceptions every appointee on a board of railroad commissioners in this country is a man who never spent an hour in the employ of the business he assumes to govern. The greatest railroad commission in the United States has one member who was formerly a brakeman, and he is the only railroad man out of the seven.

On a road of fifty thousand employes—and we have several such in America—there is only one president. He must have risen over the heads of 49,999 others, many of whom were nearly as well qualified as he. His selection was the result of years of application to duty which developed business acumen and sagacity of a high order. By all known laws governing the conduct of human affairs, it is right and proper that this should be so. Yet by amending and repealing those laws, men are placed on these commissions and given far greater control over the railroad business than the presidents have, who not only are not as capable as the president—they are not as well qualified as most of the 49,999 others. Is it right? What think you, Mr. Average Man?

You remember the fable of the Greek Hero who drove the chariot across the heavens from sunrise to sunset, and how his son, Phaeton, an impetuous youth, implored the father to let him drive one day. He could do it, he knew. It looked so easy. And you remember how he found the task greater than he could perform, how the steeds became unmanageable, and how both chariot and driver plunged headlong to the earth below.

I ask you, Mr. Average Man, Mr. Representative Citizen, Mr. Man Up a Tree, why not be reasonable about this matter? Why not let men do that which they are qualified to do? Instead of handing over the railroad chariots and the great iron horses to our favorite sons, why not leave them in the hands of the experienced fathers? Why not give "the reins to those who can drive?"

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Railroads and Farming

By FRANK ANDREWS,
DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

RAILROAD companies are making and for a number of years have made special efforts, apart from strictly transportation business, to promote agriculture. Within the past decade these special efforts have increased in importance. Railroad after railroad has undertaken agricultural promotion work, and region after region has been added to the territory reached by this growing movement. Early in 1912, the mileage operated by companies engaged in agricultural promotion was more than three-fourths of the total railroad mileage of the United States, and the territory affected was nine-tenths of the area of the country and contained more than nine-tenths of the total area of farm land.

During the past year (1912), this work has been extended further. New roads are being added to the list of those engaged in trying to make greater the yield of farms, and roads already so engaged are broadening the scope of their efforts. The railroads are working for the increase in traffic which naturally results from increased farm production. Better farming means more tonnage for transportation lines. About one-fifth of the gross earnings from freight carried on United States railroads is due to hauling agricultural products, and by more efficient farming, this class of traffic promises greater returns in the future. Such commodities as fruits, vegetables, and dairy products yield a comparatively high rate of return to the producer and pay higher rates of freight than such commodities as grain and hay can afford to pay. Hence these products receive much attention on the part of the railroads' agricultural experts, although other branches of farming are by no means neglected. Good country roads is a subject exploited systematically by some railroad companies. One company has for years run "good roads" instruction trains through different sections of its territory.

Most of the lines of work undertaken by railroad companies for the promotion of agriculture may be divided into two general classes. The first of these classes consists of efforts to increase the number of farmers in the regions along the railroads concerned; while the second class of work may be called educational and looks to an increase in the production of farms already established.

Efforts to Increase Farming Population.

All railroads are interested in the increase of population along their lines and a large portion of them have officials whose duty it is to solicit new settlers, especially settlers for farm lands. The title of the official at the head of such work is frequently "immigration agent" or "commissioner of immigration," but his duties are not necessarily limited to soliciting immigrants from foreign countries; in fact, that may be but a small part, or no part at all, of his work. Most of the farmers who move to the regions advertised by these immigration agents come from other parts of the United States and only a small proportion from foreign countries.

This "immigration" work was begun by some railroads as far back as 1861, and possibly ten years earlier. The Erie Railroad Company is said to have run its first immigrant train from New York to the West in 1851. In 1870 the land department of the Union Pacific Railroad was in operation, advertising 12,000,000 acres of farming and mineral land for sale. "Land-exploring tickets" were advertised. The purchaser of such a ticket was entitled to travel over a given route with the privilege of stopping over at a number of points, so that he might see the lands advertised. In case he bought a farm from the Union Pacific Railroad Company, he was to be credited with the amount he paid for his ticket.

During the construction of the Northern Pacific Railroad, its land and immigration agents were employed in soliciting settlers for the new territory that was being opened up. In 1872 the company reported to Congress that there were on file applications for 95,000 acres of the company's land in Minnesota and 45,204 acres in Washington territory.

AGRICULTURAL EXHIBIT TRAIN OF THE PENNSYLVANIA RAILROAD.

The purpose of the railroad is to teach the producer to cheapen the cost of production, raise the standard of the product, increase the yield per acre, and secure the most profitable market.

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THE FIELD PRODUCTS CAR OF THE PENNSYLVANIA RAILROAD.

Displayed in this car are 582 specimens of fruits, vegetables, grains, hay, cotton and tobacco, grown along the lines of the Pennsylvania Railroad.

The efforts of railroad companies to attract new settlers are now concerned chiefly with three general divisions of the country: One of them lies west and south of the Missouri River and west of the lower part of the Mississippi River, and extends to the Pacific Coast; the second division extends from the Ohio and Potomac rivers southward to the Gulf of Mexico, and from the Mississippi River to the Atlantic Ocean; while the third and smallest division includes New England and eastern New York. There is more or less work being done to attract settlers to other parts of the United States, included in the territory north of the Ohio and Potomac rivers and extending from eastern New York and the coast line of New Jersey, Delaware and Maryland, to the Missouri River, but this region is regarded by the railroad immigration officials rather as a source from which to obtain new settlers than as a place for them to settle. Land values in this region are relatively high, the average per acre for individual States, according to the census for 1910, ranged from $25.69 to $95.02, and the mean for all States in this region was $45.89 per acre. The mean values per acre of farm land for the other three groups of States mentioned in this paragraph were $27.79 per acre for the west and southwest; $17.21 for the south; and $25.09 for the northeast.

The most general line or phase of immigration work is the issuing of literature describing the regions to which settlers are invited. In addition to booklets and circulars, press notices are prepared for newspapers and are printed with other reading matter. Advertisements are inserted in numerous magazines and newspapers, and in some instances regular magazines are published by railroad companies. Authors and publishers are furnished with photographs illustrating something of interest concerning the agricultural advantages of certain regions. While it is to be expected that such literature would naturally call attention to the best side of the story and place little or no emphasis on the disadvantages in the regions advertised, it is nevertheless true that it is to the advantage of the railroad company to secure a satisfied settler, and much to its disadvantage to have him become dissatisfied, return home, and spread abroad unfavorable accounts of the country where he failed.

Agricultural Instruction Trains.

The second principal class of agricultural promotion efforts, it has been noted, is educational. One of the most popular of these educational features is the instruction train. This "college on wheels" is said to have been instituted some fifteen or twenty years ago by one of the most active of the present-day industrial and agricultural commissioners, and the institution has developed greatly within the past decade.

Agricultural instruction trains are examples of the co-operation of railroad officials with Government authorities. The lecturers accompanying such trains are usually members of the faculty of a State agricultural college or experts from a State experiment station or the United

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States Department of Agriculture The railroad company provides the train, frequently at a low rate or no charge at all, plans or helps to plan the intinerary, and by advertising and press notices helps to attract people to the various stations where lectures are given and where opportunity is afforded to look at the exhibits in the train. Sometimes an agricultural expert in the employ of the railroad company accompanies the train and assists the lecturers and demonstrators.

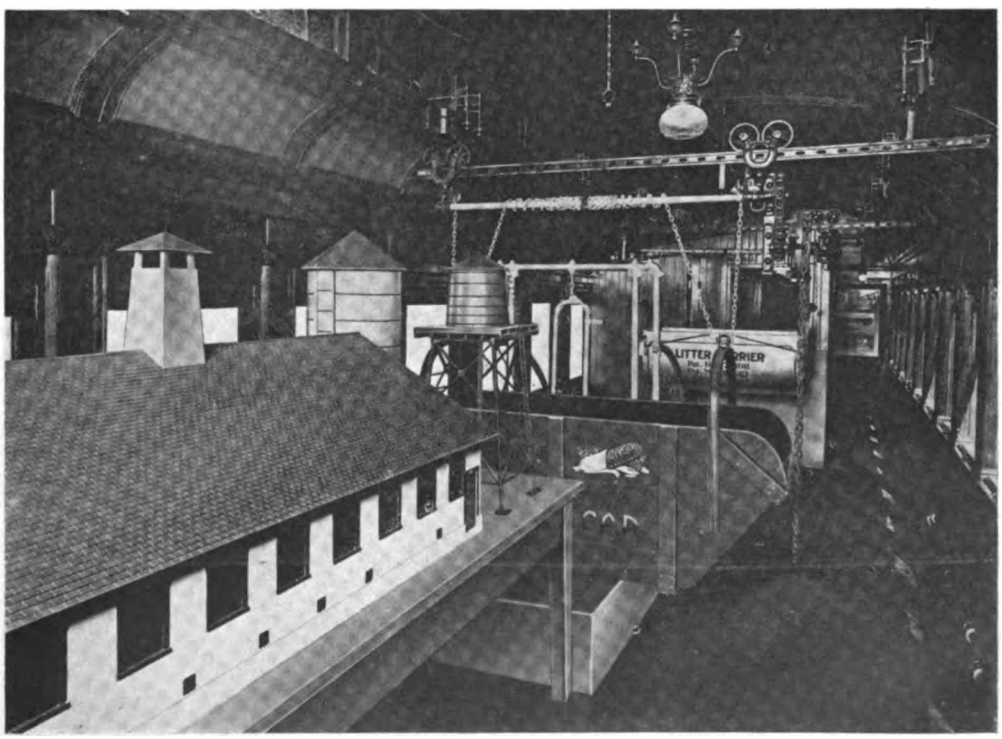
The topics discussed by these train lecturers relate to many phases of agriculture. Among the subjects common to the lectures in most sections of the country are dairying, orchards, fertility of the soil, seed selection, insect pests, plant diseases, marketing, and domestic economy. In the Middle Atlantic States, from New York to Virginia, inclusive, alfalfa and potatoes have been prominent among the subjects, while in the region south of the Ohio and Potomac rivers truck growing, diversified farming, good roads, and the cotton-boll weevil have been given considerable attention. The topics in North Central States include grain, bacon production, and silos. In the Southwest, truck farming, cotton, live stock, fruit growing, and dairying have been discussed from these trains, while in the Rocky Mountain and Pacific Coast regions some of the topics were fruit growing, rotation of crops, conservation of moisture, and chemistry of the soil.

A given trip of an instruction train may be devoted to a single topic, such as good roads or seed selection, while another trip may include a variety of topics. The subjects treated by the work of one train in January, 1912, included dairying, seed selection, soil fertility, alfalfa, poultry, fruit raising, silage, marketing and soy beans.

The length of a trip of an agricultural instruction train varies from a few days to several months. The number of daily stops for instruction also varies. Some recent trains made one or two such stops a day, while other trains have made eight, nine, or more a day.

Experimental Farming.

A newer and possibly more efficient factor in agricultural promotion than the instruction train is the experimental plot worked on a private farm by the farmer himself, but under the direction of the railroad agriculturist. Hundreds, possibly thousands of such plots were worked during the past season, and probably many more will be worked in 1913. By this plan, the experimenting farmer and his neighbors are given opportunity to try new things, and often to try them entirely at the railroad's expense. The area used is small, often not over an acre. In some instances, the farmer is paid for the use of his acre, is furnished with seed, may be loaned some special implement, as a subsoil plow and is given the crop. But he must follow the directions of the railroad's agriculturalist in cultivating the plot. Some of these plots are located in New Mexico and Arizona, some along the lines between St. Paul and the Pacific Coast, and still others in the cotton belt between the Mississippi River and the Atlantic Ocean. In this southeastern quarter of the country, the farm demonstration work has recently received



PENNSYLVANIA RAILROAD'S MODEL DAIRY CAR.

Containing a dairy barn, and full size sanitary stall and a completely equipped dairy house.

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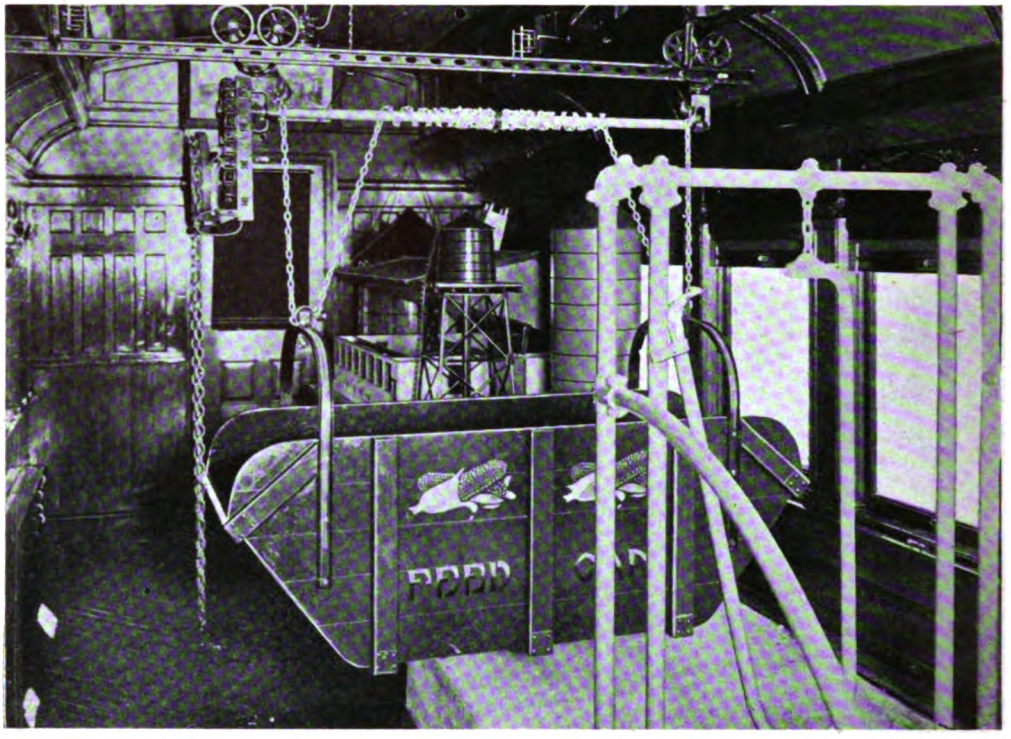
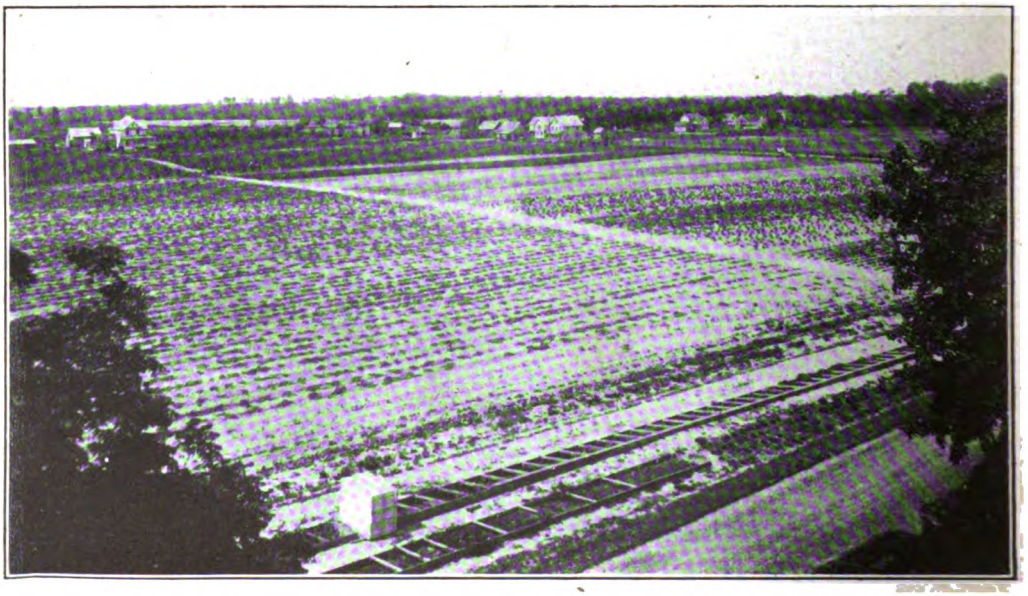


INTERIOR OF THE PENNSYLVANIA RAILROAD'S DAIRY EXHIBIT CAR.

Illustrating the most up-to-date and economical methods of modern dairying.

a new impetus. One of the largest railroad systems serving that territory has organized a department of farm improvement, with a corps of field agents whose territory extends into every State east of the Mississippi and south of the Ohio and Potomac rivers.

Some railroads conduct their own farms to serve as experiments or demonstrations. Among the States in which railroads are conducting experimental or demonstration farms are Maine, New York, Delaware, Virginia, North Carolina, Montana, and Texas, according to recent re-



PENNSYLVANIA RAILROAD'S DEMONSTRATION FARM AT BACON, DELAWARE.

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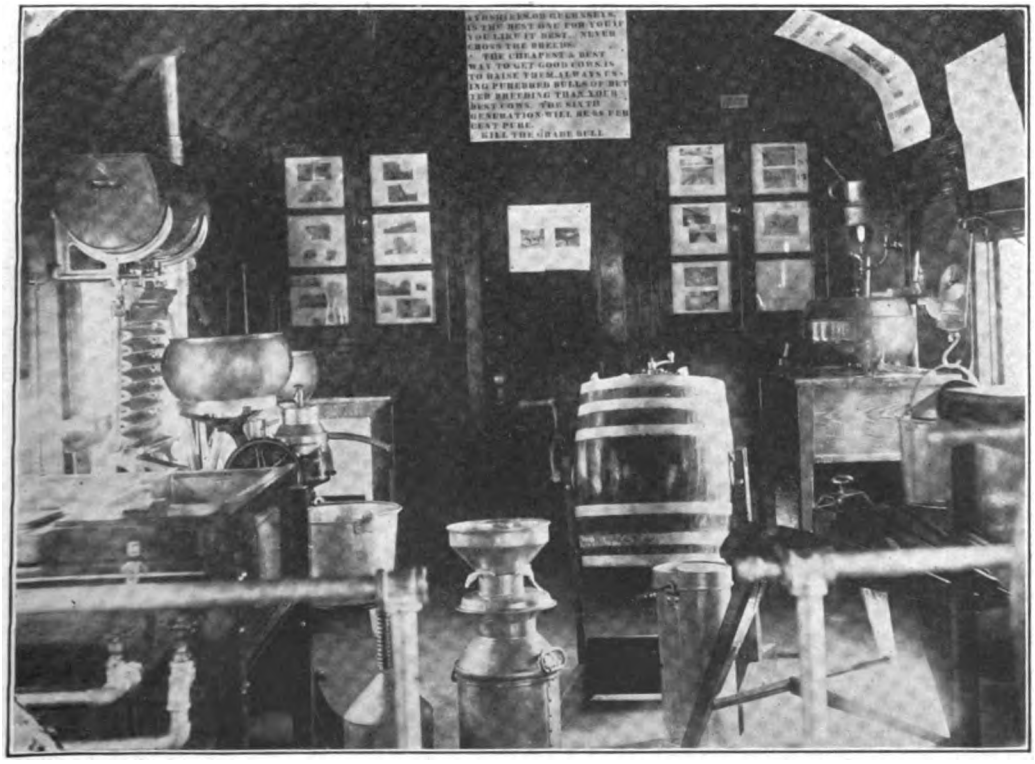
AN EDUCATIONAL EXHIBIT OF THE SOUTHERN RAILWAY.

ports. Some of these farms are intended to show the possibilities of raising vegetables in certain regions along the Atlantic Coast; one farm, up on the Blue Ridge Mountains, is devoted to fruit; and others serve as examples of other branches of agriculture.



INTERIOR OF A SOUTHERN RAILWAY DEMONSTRATION DAIRY CAR.

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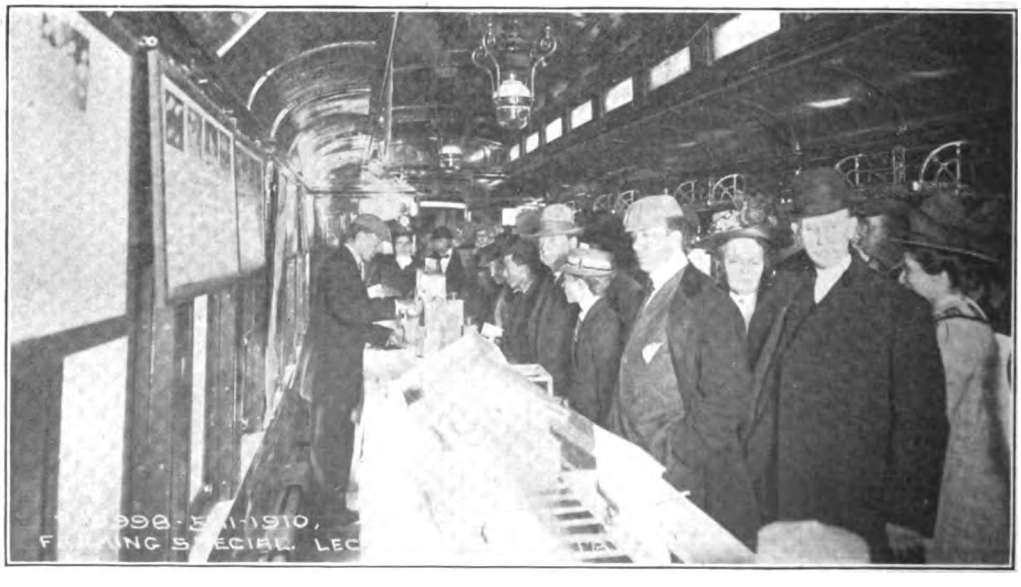
CAR OF NEW YORK CENTRAL LINES CONTAINING VARIOUS GRASSES USED FOR ILLUSTRATING LECTURES TO FARMERS.

Prizes for Agricultural Exhibits.

Prizes are frequently offered by railroad companies for exhibits at agricultural fairs. One railroad gave a series of prizes for corn. One prize was awarded to the successful competitor from each county in a certain State, and a grand prize was given for the best exhibit in the State. Another company offered seven prizes, of $100 each, to competitors from the farms in the region served by the railroad.

The management of at least one system offers fine live stock as prizes. The successful competitors in boys' corn clubs are given thoroughbred boars. On another road of this system a Percheron mare was given as a State prize in each of two States, and a registered Berkshire boar as a prize in each county within a given region.

Another kind of reward offered by a railroad for success in farming is a free scholarship for a short course in agriculture at a State college. One company has offered such a scholarship to one person in each county reached by its lines within a given State, and nearly all the scholarships were awarded the first year the experiment was made.



A PRACTICAL LECTURE AND DEMONSTRATION IN A NEW YORK CENTRAL FARMING SPECIAL.

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Work of the Railway Agriculturist.

The agricultural representative of a railroad is often engaged in work connected with farmers' associations and with special public meetings held in the interest of farming, but not necessarily connected with any permanent agricultural organization. The part he may take depends upon various conditions. He may be asked informally by officers of an association for some advice on a special topic, he may make an address at a public meeting, or he may simply attend a meeting to learn more of agricultural conditions in his territory and to get better acquainted with the farmers. Again, he may take a leading part in forming associations. One railroad company recently sent an official over its lines to organize live-stock breeders' associations in nearly every county entered by the road. These associations once formed were encouraged by the railroad to hold sales of registered stock.

The agriculturist of still another road devotes part of his time to organizing co-operative marketing associations and to helping them find markets for their produce. In one of the South Atlantic States there were in 1911, five alfalfa clubs organized, partly through the efforts of a railroad agricultural official. Two other similar officials, one in the Southeast and the other west of the Mississippi River report considerable activity in promoting boys' corn clubs.

In at least one old farming region, where there is a considerable number of newly arrived farmers, a railroad company endeavors to bring old and new residents together by means of public agricultural meetings, in order to promote a neighborly feeling and make the new residents better satisfied with their homes.

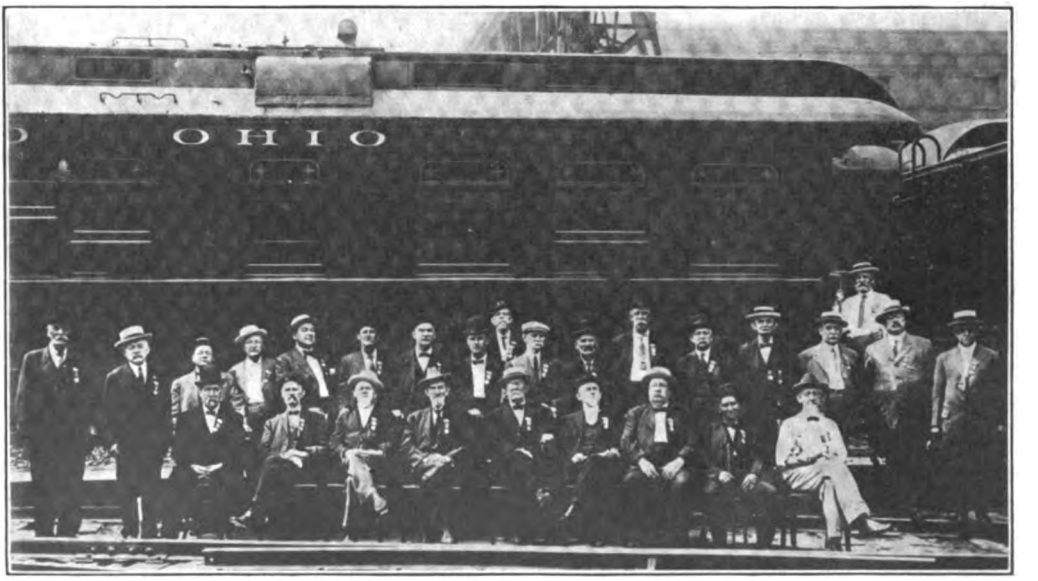
The agricultural promotion work of railroads is primarily intended to increase traffic. Large crops mean large tonnage. Prosperity for the farmer results in him making greater purchases, thus adding another increment to tonnage carried by rail; and prosperity also gives the farmer and his family more opportunity to travel, thus tending to increase railroad earnings from passenger traffic.

There is an indirect effect of such promotion work, which may become important in the future, if it has not already made itself felt. The co-operation of railroad companies with farmers, where both parties are seeking a common end—to get more out of the soil—tends to develop a mutual good will. And it is natural that the good will growing under such conditions may contribute toward the solution of some of the present-day economic problems, in which railroads and farmers appear to have opposing interests.

The Baltimore and Ohio's Sixtieth Anniversary

DURING the semi-centennial celebration at Wheeling of the admission of West Virginia as an independent State of the Union, the Baltimore and Ohio Railroad commemorated the sixtieth anniversary of its completion to the Ohio River. The old locomotives that ran from Baltimore to Wheeling sixty years ago were taken out of storage and exhibited at Wheeling, under steam, and were run by veteran railroad men now retired, who returned to active service for this occasion. The total years of service of those who took part in the celebration were 775.

With the single exception of the horse-drawn



BALTIMORE AND OHIO VETERAN LOCOMOTIVE ENGINEERS AT WHEELING, W. VA.,

on the occasion of the semi-centennial celebration at that city. Though now all on retired list, these men returned to active service for the week of the celebration and manned early types of locomotives and cars. 775 years of total service are represented by the group.

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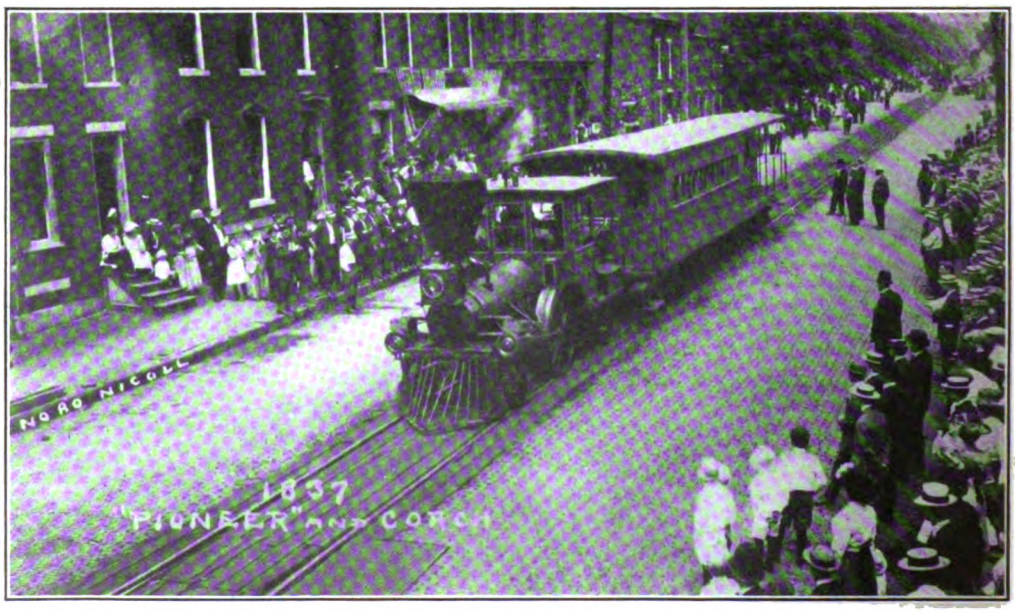
THE "MISSISSIPPI." AN EARLY LOCOMOTIVE IN USE ON ILLINOIS CENTRAL RAILROAD, BEING PROPELLED UNDER ITS OWN STEAM AT THE WHEELING CELEBRATION.

car of 1830, every example was the original locomotive. Realism thus accentuated was further heightened by the movement under steam, this being pre-eminently the age of "seeing the wheels go 'round." The old engines were run under steam in the old Hempfield Yard, where they remained during the week, and on one of the days all were marshalled in a parade presenting a spectacle the like of which may never be witnessed again.

Old types of locomotives that in their day marked progress in railroad development as suggestively as the "Mallet," "Mikado" and "Pacific" of these times, once more came to life and were living, breathing things. Stacks that had not vomited smoke, fireboxes that had known no heat, boilers that had remained cold and piston rods motionless from a quarter to a half century showed that they could "come back," as the sporting phrase has it, and great was the wonderment of the younger generation. Not only to the younger generation but to their elders was it an unforget-



THE "PIONEER." FIRST LOCOMOTIVE IN CHICAGO, 1837. RUNNING UNDER ITS OWN STEAM IN PARADE AT WHEELING.

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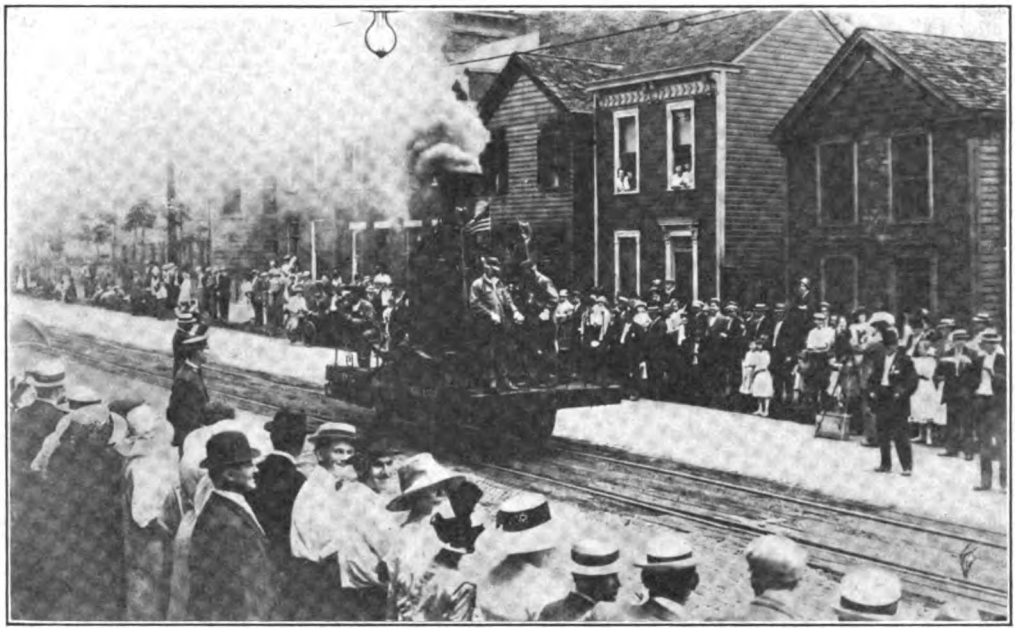
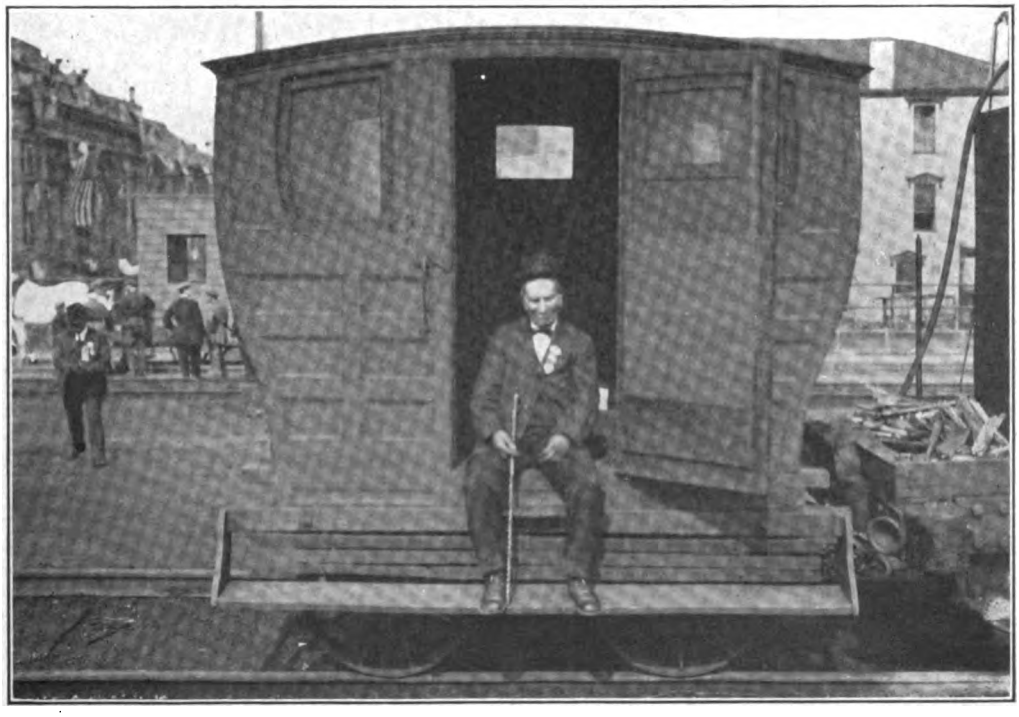


THE "ATLANTIC" IN ACTIVE OPERATION IN 1832. RUN AT THE WHEELING CELEBRATION BY VETERAN ENGINEERS.

able lesson in advancement. The comparison of these little engines with the monster ones of the Mallet type was most striking.

The old Hempfield Yard, a square now in the very heart of the city, into which came the Baltimore and Ohio years ago, could not have been



"DADDY" JOHN SMITH, 58 YEARS IN BALTIMORE AND OHIO SERVICE, SEATED IN AN EARLY TYPE PASSENGER CAR.

"Daddy" John hauled the special car occupied by President Lincoln through Baltimore on way to first inauguration at Washington. Mr. Smith had a personal acquaintance with the martyred President.

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better located for the showing had it been planned as a stage in a great amphitheatre. Its tracks abutting on a main thoroughfare directly opposite the City Hall and with wide avenues affording equally ready access, there were no crossing of tracks and the usual complexities of railroad yards to encounter in getting from one part to another. The yard contributed a huge level stage and upon it flocked thousands, not only curious as to the old manner of train propulsion but deeply impressed with what 80 years have wrought in its development.

For the parade the locomotives were backed down the residence-skirted track over which the Baltimore and Ohio trains to Pittsburgh pass. Interest was absorbing, for the head-on return was to illustrate in chronological order the progression from the shanty on wheels that antedated the locomotive to the amazing "Mallet" of to-day, which in length and bulk dwarfed the adjacent houses.

The old horse-car headed the pageant, drawn by a grey horse, its driver perched high in front with one foot on the bar for controlling the car as in the stage coach of the period.

Then came the "Atlantic" of 1832, the oldest locomotive on the continent in its original form. The upright boiler with its bunched mechanism provoked curious comment and its queer feature of the high-jointed perpendicular piston rods caused one to instantly think of a huge grasshopper jumping along.

Next in line was the "Thomas Jefferson" of 1834 of the same type as the "Atlantic," but with cab and otherwise improved as she was during a service extending over 40 years, drawing an old four-wheel passenger coach of 1838. This coach is in the form of a road stage coach in vogue about 70 years ago, its rounded body and two cross-wise seats facing each other, with a carrying capacity of about six or eight persons.

Immediately behind the "Thomas Jefferson" and coach was the "Mississippi" of 1837, the first locomotive seen west of the Mississippi. She was designated by the crowds that thronged the yard as "the engine that is all stack," and upon seeing it for the first time it certainly did impress one that way.

The Cumberland Valley "Pioneer," the Seth Wilmarth type of 1847 locomotive, followed, drawing an old combined passenger and baggage coach of 1855. The "Pioneer" in 1860 made a special run from Harrisburg to Chambersburg drawing her regular train of one or two coaches in 68 minutes, including two stops of eight minutes each for wood and water, averaging very close to a speed of a mile a minute.

The North Western "Pioneer" of 1848 came next. The line that she ran upon was the old Chicago and Galena road, now a part of the Chicago and North-Western System, and was the first locomotive seen in Chicago when put in service.

Then came the "Dragon" of 1848. This locomotive was an early eight-wheel passenger type of the period, built by the Baldwin Company for the Baltimore and Ohio Railroad and saw many years of service.

After the "Dragon" was the "Camel" of 1850 and the type of freight power in use on the Baltimore and Ohio when completed to Wheeling. Many of the old railroaders around that section of West Virginia still remember seeing this class of engines in active service.

Bringing up the rear of the pageant was the enormous three hundred ton mountain grade locomotive, the "Mallet." The "Mallet" in full working order weighs 43 times as much as the Grasshopper "Atlantic."

Future of Panama Railroad

AT a meeting of the Board of Directors of the Panama Railroad Company, held in Washington, on June 19, to consider the future of the railroad, and its steamship line, the vice-president laid before the board communications from thirteen directors of the Panama Railroad, and of the Naval and Military Board, setting forth, in response to a request of the company, their individual views as to the advisability of continuing the operation of the railroad and steamship lines, and their conduct under the private charter of the company.

After a full consideration of these several views, it was unanimously concluded that the operation of a railroad over the Isthmus was both a military and a commercial necessity, and that for the purpose of maintaining a constant and adequate supply of provisions and materials upon the Isthmus for use in connection with the Canal and railroad, and of establishing reasonable prices with respect thereto, and for the purpose of maintaining a line of transportation at reasonable rates between the United States and the Isthmus, available to the employes, officers, and soldiers of the United States, and their families, domiciled upon the Isthmus in connection with the maintenance, operation, and protection of the Canal and railroad, it was highly advisable, if not necessary, that the Government should maintain a steamship line either directly, or through the agency of the Panama Railroad Company, between New York and Colon.

It was further the opinion of a large majority of the directors submitting opinions, and of all present and participating in the discussion, that for legal and practical reasons, it was inadvisable for the Government of the United States to surrender at the present time the charter of the Panama Railroad Company. This charter was granted by special Act of the Legislature of the State of New York in the year 1849, and which charter conferred valuable privileges not easily obtainable at the present time, including the right to operate a steamship line in connection with the railroad. Moreover, the title to land grants conferred upon the Panama Railroad Company by the Republic of New Granada in connection with the original concession, and the concessionary rights for the exclusive maintenance and control of all railway and water transportation routes across the Isthmus of Panama, were vested in the railroad company. These rights so vested have been subsequently recognized by the Republic of Colombia, and the Republic of Panama. It was further considered that the Panama Railroad by reason of its exemption from governmental restrictions with respect to advances, and the collection and disbursing of funds, was capable of discharging a general transportation duty toward the public in the operation of its railroad and

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steamship lines, which could not be discharged by the Government of the United States operating directly without substantial amendments to the general statutes.

It was the opinion of the majority of the directors that, in the absence of an expression to the contrary by Congress, no good reason was perceived, why, in connection with the operation of the railroad and steamship lines, they should not be allowed the use of its available space for the transportation to and from the Isthmus of commercial cargo. It was considered in this connection that the establishment of local rates between New York and Panama might have an indirect bearing upon the prices at which commodities might be handled by private merchants, and others upon the Isthmus, and thus indirectly redound to the benefit of the American population resident upon the Isthmus in connection with the operation, maintenance, and protection of the Canal. It was finally unanimously agreed, inasmuch as Congress under various Acts and Resolutions had recognized the continued activities of the Panama Canal, and in the Act of August, 1912, had authorized the continued use of the Panama Railroad Company for the purpose of discharging the duties and functions assumed by the Government in connection with the operation of the Canal, or thought desirable in reasons brought forth in the discussion, that no change of policy in the operation of the Panama Railroad and steamship lines should be declared until such time as experience may have demonstrated that a change were advisable, or until such time as Congress may have indicated by legislation that the policy of the Government with respect to this company should be modified or reversed.

Thereupon it was unanimously

Resolved, That, except as the emergencies of the company's traffic may make changes necessary, there be no change in the present method of operating the Panama Railroad and its steamship line.

The Relations Between Local Agents and the Traffic Department

By EDWIN H. LEA.

WE are all in a sense members of one great family, to each branch of which is assigned certain duties and responsibilities, the combined faithful performance of which tends to perfect methods and adjust conditions on politic lines. Thus equipped and working as a unit transportation troubles will be few and our tons and friends be many.

In the local agent is concentrated a larger percentage of representation of the other family branches than perhaps any other subordinate employe; he is, at times, the sole representative on the spot, and on his line of judgment, manner or action, is adjusted the pivotal point of public opinion for or against the family at large. It is sometimes erroneously conceded or individually assumed that the local agent is responsible only to the transportation branch of our family, and that so long as his duties pertaining to this branch are satisfactorily performed his position is reasonably safe. While an agent may for a time be successful in accomplishing this end under such a misapprehension of his full duty, he is like the seed sown in stony places: "He endureth only for a while," and fails to grow in individual influence, either in his own branch, in the family or among the patrons with whom he comes in contact. The greater his knowledge of and his interest in the other branches, the better fitted he is to represent the family at large, dispense information, and exercise tact in the performance of his duties.

Among the larger branches of our great family is the Traffic, or originating, department, on whom devolves the responsibility of encouraging and securing for transportation, a sufficient tonnage volume of various commodities moving in all directions, to maintain a revenue income of such proportions as will meet reasonable operating expenses and leave something for the stockholder. The heads of this branch are largely dependent for success in the direction indicated, on the individual efforts of every other member of the family at large, each of whom has, or can exercise, an influence directly or indirectly, favorably or unfavorably, on the revenue results. The necessity then for hearty co-operation with this branch is apparent to any sensible and loyal employe, and to none more than to the local agent who in his position, has so many opportunities to encourage and develop traffic and make friends for the entire family. The following simple rules suggest themselves to my mind as great helps towards increasing an agent's influence as a traffic representative:

First.—Personal affability, thoroughly impregnated with knowledge of all details properly pertaining to his position.

Second.—Absence of deception and the presence of personal interest in all transactions with the public.

Third.—Maintenance of a standard of subordinate efficiency.

Fourth.—The enforcement of the rules of politeness towards the public among those under his supervision.

Fifth.—Keeping the Traffic Department posted as to local conditions, tonnage variations, and prospective freight movements.

The adoption of, and compliance of these rules, will develop an up-to-date, influential agent, whose qualifications will embody traffic representation of a high order and create for him an influence among the family at large that will result in meritorious reward, returning to him a high rate of interest on the investment of years of training along the line of intelligent, energetic, conscientious, and co-operative work. He should remember always that in every revenue dollar there is an element of cost that can be appreciably increased or decreased in proportion as his traffic qualifications are tactfully exercised in securing new business.

This question of co-operative work is deserving of thoughtful consideration, the result of which should be an individual determination on the part of each local agent to become from now on a brighter traffic light in his home territory, so that the combined reflection therefrom would not only brighten the traffic canopy of his own line but that of the whole transportation world.

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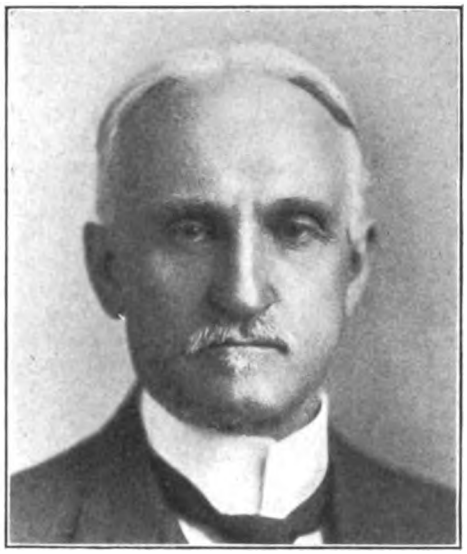
Personal



WILLIAM P. CLOUGH.

William P. Clough.

WILLIAM P. CLOUGH, who for more than a year has been first vice-president of the Northern Pacific Railway, has been made chairman of the board of that road, this new office being created on account of the resignation of Howard Elliott as president. The elevation of Mr. Clough to this position constitutes an expression of appreciation on the part of the Northern Pacific directors of the responsible executive duties which he has been discharging during the past twelve years, but does not indicate, to any radical extent, the change in such duties.

Mr. Clough was born in New York State, and entered railway service on October 1, 1880, as general counsel in the west for the Northern Pacific, occupying that position until June 1, 1887, when he entered the executive department of the St. Paul, Minneapolis and Manitoba as assistant to the president, soon after becoming a director and the second vice-president of that company.

February 1, 1890, when the St. Paul, Minneapolis and Manitoba was taken over by the Great Northern, he became a director and the first vice-president of the latter company, and remained in those positions until the summer of 1901, when he resigned them to become a director of the Chicago, Burlington and Quincy, and a director and a member of the executive committee of the Northern Pacific, which positions he has continued to hold, and which, for the past twelve years, have chiefly occupied his time. On July 1, 1912, he became first vice-president of the Northern Pacific.

Jule M. Hannaford.

JULE M. HANNAFORD, who has recently been selected for the presidency of the Great Northern Railway Company, is a self-made man and one who has gained the respect and admiration of his fellow men by his close application to duty and his desire to deal fairly with the employes of the great organization with which he is identified. He was born in 1850, and at the age of sixteen entered railway service, a poor boy, without money or influence.

In May, 1872, he entered the services of the Great Northern, with which road he has remained until the present day, constantly advancing until he has reached the highest position in the service of his company. His career, briefly sketched, is as follows:

From May, 1872, until May, 1879, he was chief clerk in the general freight office; May 1st, 1879, to May 1st, 1881, he was assistant general freight and passenger agent. May 1st, 1881, to August 1st, 1883, he was general freight agent of the Eastern division. August 1st, 1883, he became assistant superintendent of freight traffic, holding that position until March 1st, 1884, and from that date until May 1st, 1886, he was the general freight agent of the Main Line and branches. May 1st, 1886, to March 15th, 1893, he was the traffic manager, and from March 15th, 1893, to February 1st, 1899, he was the general traffic manager of the road. April 1st, 1890, Mr. Hannaford took the office of general traffic manager of the Wisconsin Central Lines, during their lease to the

J. M. HANNAFORD.

Northern Pacific Railroad Company. February 1st, 1899, he became third vice-president, and on April 1st, 1902, he was advanced to the office of second vice-president of the Northern Pacific Railroad Company. He is also president of the Northern Express Company.

J. M. Johnson.

J. M. JOHNSON, vice-president in charge of traffic of the Missouri Pacific and the St. Louis, Iron Mountain and Southern, who has been appointed vice-president in charge of traffic also of the Western Pacific and the Denver and

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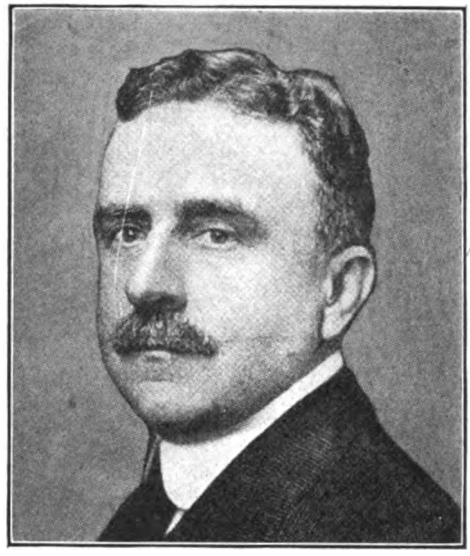
J. M. JOHNSON.



JAMES H. HUSTIS.

Rio Grande, was born May 13, 1845, at Cincinnati, Ohio. He was educated in the public schools, and began railway work January 1, 1871, as station agent for the Indianapolis, Cincinnati and Lafayette at Franklin, Ind. He was successively general freight and ticket agent of the Cincinnati and Martinsville and traveling auditor of the Indianapolis, Cincinnati and Lafayette until 1877, when he was placed in charge of the local freight traffic of the latter road. From November, 1879, to January, 1883, he was assistant general freight agent of the Indianapolis, Cincinnati and Lafayette, and the Cincinnati, Lafayette and Chicago at Lafayette, Ind. He was then made assistant general freight agent of the Cincinnati, Indianapolis, St. Louis and Chicago in charge of freight traffic originating in Chicago and the Northwest, and on March 1, 1884, went to the Chicago, Rock Island and Pacific as first assistant general freight agent. Four years later he was promoted to general freight agent of that road; from March, 1896, to March, 1899, was freight traffic manager, and on the latter date he became third vice-president. Mr. Johnson left the Rock Island on April 1, 1903, to accept the position of assistant to the vice-president of the Gould Lines, and on November 1, 1907, he was made vice-president in charge of traffic of the Missouri Pacific and the St. Louis, Iron Mountain and Southern, with headquarters at St. Louis, Mo. His jurisdiction is now extended over the Western Pacific and Denver and Rio Grande, as above noted.

James H. Hustis.

JAMES H. HUSTIS, vice-president of the Boston and Albany, who is to become president of the New York, New Haven and Hartford, on November 1st, subject to the approval of the board, succeeding Howard Elliott, who, on that date will become chairman of the board, was born in New York City, in 1864, and began railroad work as office boy in the general manager's office of the New York Central and Hudson River Railroad. In 1891 he was appointed trainmaster on the Harlem division, and two years later was made assistant superintendent. In 1900 he was appointed superintendent of the Harlem division, was later made superintendent of the River division (the West Shore), and served as superintendent of the Rome, Waterloo and Ogdensburg, of the Hudson division and of the Putnam division. In 1907 he was made general superintendent of the western district, and in October of the same year was given charge of the Boston and Albany with the title of assistant general manager. In June, 1911, he was given the title of vice-president, and the operation of the Boston and Albany was put entirely in his charge.

Mr. Hustis is a member of the board of directors of the First National Bank of Boston, and of the Newton Trust Company of his home town. He is also a member of the Boston Chamber of Commerce.

Mr. Hustis' record with the Boston and Albany has proven him eminently fitted for larger responsibilities. The improvement of the road has been continuous under his management, and he has succeeded in establishing a standard of service which might well present a model for the rest of the country. He has the rare quality in an executive of commanding the respect of his subordinate, while never for an instant standing aloof from him. With two such men as Mr. Elliott and Mr. Hustis in active control of the future developments of the New Haven, it can confidently be predicted that within a short time New England will be in possession of one of the most progressive and efficient transportation plants of the country.

C. E. Perkins.

C. E. PERKINS, the new freight traffic manager of the Missouri Pacific-Iron Mountain System, was born in Chicago, in 1871, and moved to Kansas City as a child, and there began his railroad service in 1891 as office boy in the freight office of the Kansas City, Fort Scott and Memphis. After five years of service with that line he went to the Frisco as chief clerk for the general agent at Kansas City. In 1897, Mr. Perkins became chief tariff clerk for the Kansas City, Pittsburgh and Gulf, now known as the Kansas City Southern. He was made chief clerk in the

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C. E. PERKINS.

freight department and later assistant general freight agent. For a time he was stationed at Texarkana as assistant general freight agent and also as general freight agent for the Texas line of the road. He was brought back to Kansas City as assistant general freight agent at headquarters in 1906, and in March, 1909, came to St. Louis as assistant general freight agent of the St. Louis, Iron Mountain and Southern Railway. On January 1, 1910, he was made general freight agent of the Iron Mountain. On June 1st of this year he was made assistant general traffic manager of the Missouri Pacific-Iron Mountain, and on August 1st became freight traffic manager of the system.

W. A. Barrows.

W. A. BARROWS, who has recently been appointed general passenger agent of the Boston and Albany Railroad, has been

W. A. BARROWS.

with this road for the past twenty-one years, serving it in various capacities, principally in the freight traffic department. At the time of his appointment he was assistant general freight agent, but owing to his long association with the road, had an intimate knowledge of its passenger business as well as its freight. He has a wide acquaintance throughout the territory in which the road operates, and it is believed, will prove a strong factor in increasing the good will of its patrons.

W. W. Croxton.

WARNER W. CROXTON, who recently became general passenger agent of the Atlanta, Birmingham and Atlantic Railroad, was born in Virginia, in 1881. After a high school education, he entered the freight department of the Southern Railway as stenographer at Richmond, Va., on June 1, 1900. He remained stenographer and clerk in various offices of the

W. W. CROXTON.

Southern until October 1, 1902, when he was appointed secretary to Mr. S. H. Hardwick, then general passenger agent. Since then he has held the following positions with the Southern: April 1, 1904, passenger agent at Norfolk; October 1, 1905, traveling passenger agent, New York City; April 1, 1907, transferred to Norfolk, Va., to handle Jamestown Exposition traffic; September 1, 1908, traveling passenger agent at Baltimore, Md. On September 1, 1909, he accepted appointment as assistant general passenger agent of the Norfolk Southern, with office at Norfolk, and one year later was made general passenger agent of that road. The latter position he held until his appointment as general passenger agent of the A., B. and A.

A. C. Shaw.

A. C. SHAW, who was recently elected general passenger agent of the Canadian Pacific Railway, with headquarters at Winnipeg, Man., was born in Detroit, in 1865. After receiving a normal school education, he entered railway service in 1880 with the Great Western Railway Company of Canada, as ticket clerk. In 1882 he left railway services to engage in commer-

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A. C. SHAW.

EDSON P. RICH.

cial business, but re-entered it again in 1886, as stenographer to the district passenger agent of the Canadian Pacific Railway at Toronto. The latter part of the same year he was transferred to the general passenger department of this road at Montreal, where he occupied several positions until December, 1900, when he became general agent of the passenger department, which position he held until November, 1910, when he was made assistant general passenger agent. In July of the present year he became general passenger agent.

Edson P. Rich.

EDSON PROSPER RICH, who recently was made assistant general solicitor of the Union Pacific, in addition to his duties as general attorney for the States of Iowa and Nebraska, as has already been announced in these columns, was born August 15, 1858, at Griggsville, Ill. He was graduated from the University of Nebraska in 1884, and took a post-graduate course at the Johns Hopkins University in 1884-1885. Mr. Rich was made assistant attorney of the Union Pacific for Nebraska in 1900, and from 1903 to 1904 he held the position also of general claims attorney for the entire system. In 1908 he was appointed general attorney for the States of Iowa and Nebraska, and effective July 1 this year he was made assistant general solicitor, still retaining the title of general attorney for Iowa and Nebraska, as above noted. The headquarters of Mr. Rich are at Omaha, Neb.

Financial

General Developments During August.

WHILE the present financial situation leaves much to be desired, the improvement noted in July continued during August. The money situation is in far better shape than it has been for some time, relief coming from various quarters, notably from Washington and Europe. The more recent reports from the West with regard to the grain crops have also produced an easing influence in that it is now certain that such crops will be moved with less strain than had been expected. During the month the Secretary of the Treasury apportioned to the banks in the South and West over $46,000,000 of the $50,000,000 promised these sections to assist in moving the crops. Whether or not the Secretary's action is subject to criticism on the basis of inflation, the fact remains that it has been successful in bringing about an easier condition in the money market causing freer offerings of time money and a lowering of rates. The new currency bill, although likely to be subjected to many changes before its final passage, stands in its present shape for a more elastic form of currency than we have under the present law. How far Congress will go in adopting the modifications suggested by the bankers at the conference which they held in Chicago last month, would be hard to foretell, but there is every indication that before Congress completes this work it will have provided a currency bill far in advance of anything heretofore attempted.

Other developments during the month were the declaration of peace between the warring countries of Europe and the growing belief that our intervention in Mexican affairs would not be necessary. The latter situation is, of course, still charged with uncertainty, but hope is growing stronger that a peaceable solution will be found. In upholding with firmness the principles of strict neutrality and a determination on the part of this country to refrain from invasion, the President has taken a position which meets with the general approval of the American people, and places the country on a firmer moral foundation should intervention become unavoidable later.

Both the stock and bond markets have shown

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some recent improvement but the future is still being viewed with considerable uncertainty and conservatism. The marked deterioration in the corn crop has proved a disturbing factor, while tariff developments continue to cause a cloud of uncertainty to envelop many industrial and manufacturing enterprises. Reports are also being awaited regarding the cotton crop and later grain estimates, as well as unfilled tonnage statements of the United States Steel Corporation. So far as the steel situation is concerned, it is reported that a decidedly better tone is evidenced in finished lines and consumers are buying more heavily with the conviction that prices have about reached the lowest point. Railroads are not heavily in the market, but there have been enough recent orders to show a fair activity. Taken as a whole, it is believed that the United States Steel Corporation's business for August is likely to show a slight improvement over the July orders, while independent companies for the most part report a similar condition.

Railway Dividends.

AUGUST developed two important reductions in railway dividends; one by the Cleveland, Cincinnati, Chicago and St. Louis and the other by the Chesapeake and Ohio. The action by the directors of the Big Four involved passing the quarterly dividend on the preferred stock, while the Chesapeake and Ohio, by declaring a quarterly dividend of 1 per cent, reduced such dividend from the 1¼ per cent base which had been in effect since 1911. The directors of the Hocking Valley Railroad, however, which is controlled by the Chesapeake and Ohio, have declared a quarterly dividend of 2 per cent as compared with one of 1¼ per cent previously in effect.

The reasons given for passing the Big Four dividend are concerned with the enormous repair bills and higher costs incidental to the great floods which occurred in the Middle West during March. Regarding the reduction in the Chesapeake and Ohio Railroad's dividend Chairman Trumbull, of the board, states that in view of last year's conditions the 4 per cent rate was conservative, and asserted that the outlook for the current year indicated that the company would earn fully 7 per cent. "During 1912-13," said Mr. Trumbull, "the floods and coal strikes in the territory served by the Chesapeake and Ohio reduced the earnings on the stock by about 2 per cent. The direct property loss was $350,000, but attendant losses in traffic, etc., brought this figure up to practically $1,000,000, all of which had to be taken out of earnings."

The current calendar year thus far has witnessed the reduction or passing of dividends by eight prominent railroads with a loss to their stockholders of almost $9,400,000 per annum—a sum equal to 5 per cent on almost $200,000,000 of invested capital.

Below is tabulated the railroad dividend cuts of the year thus far.

	Stock outst.	Old rate.	Pres. rate.	Act. div. reduction.
Bangor and Aroos	$3,198,600	4%	2%	$64,000
Boston and Maine.	39,505,000	4	..	1,580,000
Bost'n and Me. pfd	3,149,800	6	..	189,000
Ches. and Ohio ..	62,792,000	5	4	628,000
C. C. C. St. L. pfd.	10,000,000	5	..	500,000
Illinois Central ..	109,288,000	7	5	2,185,700
New Haven	180,000,000	8	6	3,600,000
'Frisco 1st pfd. ..	5,000,000	4	..	200,000
West. Md. pfd. ..	10,000,000	4	..	400,000
Total				$9,346,700

September Disbursements.

TOTAL dividend and interest disbursements for September, 1913, are estimated by Dow, Jones and Company at $114,000,000, as compared with $108,000,000 last year.

Up to the present time dividends declared payable in September by New York City banks and trust companies and the various corporations of the United States aggregate $63,096,646, based on a total capitalization of $3,069,394,985.

Interest payable in September on the bonds of railroad, industrial and miscellaneous companies, as well as those of cities, states and counties in the United States and the Government debt totals $50,896,456. The total of bonds of every class outstanding upon which this interest is payable in September is $2,085,011,000.

The following table gives the interest and dividend disbursements for September, 1913, in detail, showing the capitalization on which the various payments are made:

Companies.	Capitalization	Dividends.
Railroads	$1,205,530,335	$25,536,586
Industrials and misc. ..	1,637,590,000	33,468,500
Electric railways	199,274,650	2,421,560
City banks and trust cos.	27,000,000	1,670,000
Total	3,069,394,985	63,096,646
	Bonds.	Interest.
Railroads	$1,315,653,000	$28,819,039
Industrial and misc. ...	323,772,000	8,023,145
Street railways	242,316,000	5,987,375
State and city	153,270,000	3,291,897
Government	50,000,000	375,000
New York City	.....	4,400,000
Total	$2,085,011,000	$50,896,456

TOTAL DISBURSEMENTS.

	Capitalization	Disbursements
Dividends	$3,069,394,985	$63,096,646
Interest	2,085,011,000	50,896,456
Grand total	5,154,405,985	113,993,102

The Bond Market.

THE bond market showed distinctly encouraging signs of improvement during the latter part of August. This was aptly illustrated in the sale to Kuhn, Loeb and Company and Speyer and Company by the Pittsburgh, Cincinnati, Chicago and St. Louis Railroad, of $7,000,000 of consolidated mortgage 4½ per cent bonds. These bonds were first offered to the investor at par and later 100½ was asked in the New York market. It is reported that the public was quick to realize the advantage of getting these bonds at par and that in a short time few were left in the hands of brokers. Easier money is responsible for this improved tone, which it is anticipated will continue through September. Bonds are generally holding the price gains made over the low of the year and floating supplies are believed to have been pretty well absorbed. This indicates that if any considerable buying movement should start in, prices would undoubtedly harden.

The two issues which now have almost the clear field in investment bankers' attention are the Southern Pacific stock offering and the New Haven 6 per cent convertible debentures. Some of the members of the Southern Pacific underwriting syndicate are expecting that 40 per cent to 50 per cent of the $88,000,000 will be left for them to dispose of. The amount will be known after September 2. The New Haven debentures are expected to be in better demand among New Haven stockholders, and the underwriting bankers seem likely to get few of them. A policy of going slow

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in the matter of bringing out new issues is recommended by practically all bankers. This would allow the improvement in the market to continue until it reached such proportions that there would be no danger of new issues swamping the market

New York transactions for a number of weeks are indicated by the following figures:

August 16....	$7,727,500	July 26.....	$9,339,500
August 9....	7,556,025	July 19.....	6,805,500
August 2....	7,652,000	July 12.....	7,730,500

While these totals indicate comparatively small sales, the fact remains that bond prices generally, have had a good rise in the past two months, the average advance since the middle of June having wiped out at least a third of the decline which occurred from the opening of the year to June. There is reliable testimony that capital has been accumulating and while there is still an absence of liberal credit particularly in its application to railroad bond issues, conditions are improving. How long it will take, however, to reach a normal market is something which even the shrewdest bankers feel they cannot discuss with any assurance.

The Situation Abroad.

REPORTS from abroad are generally favorable. London reports the development of many favorable influences which may be the herald of one of the most active and prosperous autumns, which the stock exchange has yet encountered. The international situation no longer causes any anxiety, and the latest threat of Turkey against Bulgaria in connection with the former's re-occupation of Adrianople is not taken seriously in any direction. The belief is still confidently held that if Turkey loses her head and endeavors to unduly exploit the temporary weakness of Bulgaria she will be brought to her senses by a demonstration of the Powers at Constantinople. For the rest, peace has been formally re-established between Bulgaria and her former allies. The Chinese rebellion has collapsed, and better news is coming to hand from Mexico.

Meanwhile the monetary situation goes on rapidly improving. The gold influx into the Bank of England has become heavier than ever. Floating supplies of cash are being increased by heavy home railway dividend payments.

Broomhall's review of the grain trade in foreign countries gives imports of wheat and flour by Germany for the season ending with July 31 as 101,761,600 bushels and exports of less than 22,656,000 bushels, leaving net imports of 74,105,600 bushels, or 5,000,000 bushels less than was estimated last September. Combining the native crop with net imports, the total available supply for four seasons in quarters of eight bushels each is as follows.

	1912-13.	1911-12.
Native crop	160,240,000	149,416,000
Net imports	73,546,000	58,080,000
Total available	233,786,000	207,496,000
	1910-11.	1909-10.
Native crop	141,416,000	138,016,000
Net imports	70,800,000	75,200,000
Total available	212,216,000	213,216,000

Germany's wheat year of 1912 had a good deal of damaged product, and this is taken to account for large net imports in the year of large native production.

No large supplies have as yet burdened the market from Russia. About the middle of August the Russian situation cleared up considerably, resulting in large arrivals at Odessa and Rostoff, with expectations of good deliveries at Nicolaieff. Similar clearing in Roumania restored threshing operations. In Hungary the rains caught the country near the end of harvesting. Later wet weather interrupted threshing and reduced arrivals. The quality is said to rank high, but the crop will be about 145,256,000 bushels, compared with 173,328,000 bushels in 1912.

Scarcity of labor and the wet condition of fields delayed harvesting in France. Meanwhile threshing has extended, but the progress of quality of grain is irregular, being superior in the west but less satisfatcory in the cenetr.

General rains have fallen in Australia and prospects are again favorable with some exception in South Australia and a district or two in Victoria. In India offerings are freer and somewhat lower. There have been floods in Bengal of a severe character, inflicting damage on native food crops.

Optimism and improvement practically throughout the entire active list of shares are the dominant notes on the Paris Bourse at present. The outlook for a strong and active business season as soon as the August settlement is over and business begins its autumn movement is now so positive as to amount to certainty.

New Haven Developments.

THE New Haven Road seems to be having more than its share of misfortune recently. On top of the reported deficit for the year of $4,630,000 came newsaper account of the rear end collision at North Haven, one of the most disastrous of its kind within recent years. In addition to these unfortunate developments J. Pierpont Morgan and Company have given notice of their intention to end their connection as fiscal agents of the road. This notice, which was made public by the New Haven's Executive Committee, calls attention to the fact that in the existing fiscal agency agreement, it is provided that the arrangement shall continune until the lapse of ninety days after either party shall have given notice to terminate it. It is suggested, however, that it may be terminated at an earlier date if such action should prove agreeable to the New Haven interests.

As briefly stated in the preceding paragraph a preliminary report of the New Haven for the year ended June 30, based on a compilation of the four quarterly statements, shows a deficit for the year of $4,630,000 after payments of $13,552,237 in dividends. This compares with a deficit the previous year of $929,989, and of $1,267,540 in 1911.

Gross earnings were greater, being $68,613,502, as against $64,033,005 in the previous year. Net after outside operation and taxes was $18,310,835, as compared with $10,424,330 in the year before. Charges increased from $17,341,887 to $10,458,402. The surplus available for dividends was $8,022,237, compared with $13,383,551 the year before.

The heaviest loss was in the last quarter ended June 30. The balance for that quarter available for dividends amounted to $5,000,933, a decrease from the previous year of $2,273,856. The stock sold to a new low record yesterday on publication of the year's record, totaling 96⅛.

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This poor showing of the New Haven has led to widespread rumors of a reduction in the dividend rate and has caused a sharp decrease in stock values. Mr. Elliott's recent remark before the stockholders to the effect that in trying to protect the New Haven's future, there might be some disturbances for the present, has been so generally construed to mean that dividends would again be reduced, that he found it advisable to issue the following explanatory statement:

"This remark was not based on results or expectations on the New Haven road alone but on the general situation in the United States. It is a matter of common knowledge that the margin between income and outgo on the American railroad is very narrow, and too small for the best interests of the country, which needs the very best kind of transportation facilities.

"Circumstances sometimes compel changes in dividends. This great Chicago, Burlington and Quincy road at one time had to reduce its rate from 8 to 4 per cent. The Pennsylvania road had to reduce at one time to 5 per cent, and so had the New York Central and Chicago, Milwaukee and St. Paul. Only recently the Chesapeake and Ohio had to reduce its rate and the Big Four had to pass its preferred dividend. The Wabash, Frisco and Pere Marquette roads, all serving important parts of the United States, have not been able to make enough to keep out of court and all are in the hands of receivers.

"The result on the New Haven road for the year ended June 30, 1913, as published in the newspapers, show that the road failed to earn the dividends paid by $4,630,000. There are twenty-seven directors of the road and the decision about dividends rests, of course, with them. I have not discussed this question with them and do not know their views, but it seems obvious that dividends cannot long be paid unless earned and that it is wise to look the situation fairly in the face.

"It is conceivable that a somewhat reduced corn crop in the West, some disturbance in the manufacturing business because of the readjustment of the tariff and some slackening of business generally may produce conditions that will make it necessary or wise to change the dividend rate.

"I most earnestly hope that such conditions will not arise and I have great faith in the future growth of all kinds of business in the United States and New England. I have faith also in the strength and stability of our railroads in the long run, but if earnings decrease to a greater extent than it is possible to reduce expenses, then it would seem to be better to face the issue and consider the ultimate welfare of the property even at the cost of temporary loss and inconvenience.

"Gross earnings have increased since 1910 to the extent of $7,910,834, but at the same time expenses and taxes have increased $8,932,534, so that the net earnings show a decrease of $1,012,690. These figures emphasize some of the difficulties confronting railroad owners and managers at the present time."

The New Haven has filed an amendment with the Massachusetts Public Service Commission broadening the scope of its two earlier petitions for approval to issue $67,552,000 of indebtedness. The amendment omits all limitations and descriptions, and stipulates that $15,000,000 instead of $12,000,000 is wanted for future additions and improvements. It substitutes the words "evidence of indebtedness" for "debenture bonds," and omits several provisions, including rate of interest, and the date of issue, which appeared in the previous petitions. It is reported that a complete examination of the New Haven's finances is to be made by the State Commission before final action is taken on this application. Chairman McLeod asserts that it is the most important undertaking which has ever been before that body.

Railway Earnings.

RAILWAY earnings continue to show two marked characteristics, one an increase in gross and the other an increase in operating expenses, which often is so great as to make net revenue compare unfavorable with the corresponding month of last year. By this comparison the increase in gross of the Baltimore and Ohio for July was $785,000, while the increase in net was but $300,000. On the Erie, the gross increase was over $1,000,000 but the net fell more than $100,000 below that of 1912. On the Lehigh Valley, July's gross indicated an increase of $86,000, while the operating income showed a decrease of $266,000. On the Buffalo, Rochester and Pittsburgh, the gross showed an increase of $179,000, while the net corporate income increased by only $42,000; on the Southern Railway, July's gross fell below that for the corresponding year by $30,000, the decrease in net, however, being over $160,000; on the Mobile and Ohio, the gross improvement was considerably over $100,000 while the net amounted to but $27,000; on the Atchison, the increase in gross was $183,000, and in net $98,000; on the Chicago Great Western, the gross increase amounted to $636,000, and net increase to $19,000; on the Chicago and North Western, July's gross showed a gain of over $600,000 and a net of $20,000; on the Chicago, St. Paul, Minneapolis and Omaha, the gross increase was $142,000, while net declined nearly $6,000; on the Illinois Central, the gross improvement was $260,000 and the net $153,000; on the Colorado and Southern the gross gain was $155,000 and the net $10,000; on the Southern Pacific, gross showed a slight decline of a little over $1,000, while net fell to the extent of nearly $800,000; on the Union Pacific a similar condition was noted, the decline in gross being $4,000 and that of net $671,000.

Annual Report of the Lehigh Valley Railroad.

IN the annual report of the Lehigh Valley Railroad recently made public, President E. B. Thomas states that continued increases in the taxes railroads must pay annually, the steadily advancing cost of labor, and incidentally the new so-called "full crew laws," as well as the important and necessary betterment of the system and the added expense of handling an increased volume of business, are factors causing the advance in the cost of operation during 1913. President Thomas called especial attention to the tax accruals which every year are showing a steady increase and which now amount to 3.74 per cent of the company's gross operating revenue. In the past five years taxes have increased 43.31 per cent whereas the gross operating revenues have increased but 21.21 per cent.

The net revenue of the road for the year was $13,935,552.32 as against $12,185,685.40 last year, an increase of $1,749,880.92. The gross revenue was $43,043,371.89, against $36,905,935.21 for the

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preceding twelve months, an increase of $6,137,436.68. This was offset, however by the increased cost of operation, the total operating expense amounting to $29,107,819.57 against $24,720,249.81 for the year ending June 30, 1912.

The transportation of coal furnished the chief revenue of the company. The income from the handling of this commodity amounted to $20,385,389.09, an increase of $4,084,072.85 over the preceding year. This increase, however, is something more than a normal one, according to President Thomas, who explains it as having been due to the fact that for eight weeks last year labor difficulties in the anthracite coal fields compelled a complete suspension of business of this sort. The rush following the resumption of business furnished the special increase in business.

The total revenue from coal and merchandise freight carried by the Lehigh was $36,725,138.06, an increase of $5,832,582.26 over last year. A total of 5,518,524 passengers was carried during the year, and from this source the revenue amounted to $4,867,554.03, an increase of $163,820.51.

The preliminary statements of other roads for the fiscal year which are now coming in, possess the same general characteristics of recent monthly statements, that is, they generally show a favorable increase in gross which is often partially or more than offset by a corresponding increase in the cost of operation.

Operation

The New Haven Wreck.

IN accepting the position of chief executive of the New Haven lines, President Howard Elliott has assumed responsibilities which might well have caused a less resourceful man to hesitate. It was on the first day that he actively assumed the office of president that the disastrous wreck occurred in which the Bar Harbor express was rammed by the White Mountain night express near North Haven, Conn., and twenty-one persons killed and fifty injured.

The cause of the disaster has been thoroughly investigated by the Interstate Commerce Commission, by the State authorities of Connecticut and by the Railroad, and while it appears there was unquestionable negligence on the part of the flagman of the train rammed, in not installing precautionary signals at a distance sufficient to insure safety, and on the part of the engineer of the second train in maintaining excessive speed under conditions of fog, it was clearly shown that the banjo signals, still employed by this road to a large extent, are far from satisfactory in developing the same degree of safety as do the semaphore signals now used on a great majority of the country's railroads. The investigation showed that the engineer of the White Mountain express had a clear right of way over the tracks where he was running on the morning of the wreck. The Bar Harbor Express, second section, the train which was wrecked, ran by the banjo signal 23 at North Haven, and thereby tripped the signal which gave Miller the right of way over the three-mile tangent preceding.

This fact was established by the admission of the engineer of the second section of the Bar Harbor Express, who did not hesitate to say that he had run by banjo signal 23. He gave as his reason for this the excessive speed at which he was traveling, and the fact that the fog obscured his view of the banjo signals until he was almost upon them. He said, however, that he had a signal to proceed two minutes after he stopped, but he waited six minutes, believing it was better to give his flagman ample time to protect his rear end, after having tripped the signal.

President Elliott has acted promptly in the matter and has been quick to assert that nothing will be spared to make the system one of the safest in the United States. It is the intention of the present management to have all its sleeping cars of steel before January 1st, if the Pullman Company can furnish them, and rush orders have been sent to other car builders, who now have steel cars for the company under contract, calling for the expenditure of $6,500,000. Orders have also been given to rush work on the new signal system which is to replace the old banjo type.

The wreck has occasioned a vast amount of bitter newspaper criticism, a part of which, unfortunately, has been far from fair. For example, the system's lack of steel car equipment has received the strongest censure, and it has been made to appear that the New Haven was far behind other systems in the employment of such equipment. With but two or three exceptions, however, steel passenger cars are used at present to only a limited extent, and while all roads are desirous of producing a maximum of safety in train operations, steel passenger equipment is a comparatively new development and can only be taken advantage of as the present rolling stock is either worn out or advantageously disposed of in some other manner.

The record of the New Haven road for the past four years is one which has been far from satisfactory, and undoubtedly requires a drastic remedy which it is believed the new chief executive will vigorously apply. An examination of the Company's record for the past ten years, however, shows that for the first six, the road maintained a high degree of immunity from accidents under conditions of road equipment and traffic similar to those existing when the fatal accidents occurred. While this constitutes no reason why every effort should not be made to develop a maximum of safety, it does illustrate how adventitious railway accidents are.

Results of the Tyrone Wreck Investigation.

THE Interstate Commerce Commission has issued a report covering its investigation of the rear end collision which took place between two passenger trains on the Pennsylvania Railroad at Tyrone, Pa., on July 30th. The Commission squarely places the blame upon the shoulders of three men on the locomotive which caused the damage, for failing to observe the signal which had been set against the approaching train.

The accident resulted in the death of one employe and the injury of one hundred and twenty-

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six passengers, twenty employes, five postal clerks and two Pullman employes.

The trains were being operated under the automatic block system, which was in good working condition. The report says there is no excuse for the failure of all three men to observe the signal.

"A consideration of accidents of this character," says the report, "leads inevitably to the conclusion that even the most complete and modern system of fixed signals is not adequate and calls attention to the necessity of automatic train stopping devices."

The report says that "the substantial construction of the modern steel cars of these trains is, without doubt, the reason that none of the passengers were killed."

British Railway Accidents.

REPORTS to the British Board of Trade by the railways of Great Britain show that in 1912, 1,010 persons were killed by train accidents, and 8,700 injured, as compared with 1,070 killed and 8,345 injured in 1911. Not only was there a smaller number of fatal accidents in the last year than in the preceding, but the record was also encouraging when compared with the average yearly mishaps in the period from 1901 to 1910. In the decade 1,046 persons were killed each year. The average of injured in the ten-year stretch, 7,348 per year, was, however, lower than in either 1912 or 1911.

Of the total killed last year from accidents to trains only nineteen were passengers. Passengers injured in mishaps to trains numbered 683. Ninety passengers were killed from other causes while traveling and 2,146 injured. Of "other persons" there were 2,458 trespassers to meet death, including suicides, and 127 injured, and 69 were killed while crossing the tracks and 32 hurt. In addition to accidents connected with the running of trains and the movement of cars, a large number of mishaps occurred on railroad property, which accounted for the deaths of 107 and injury to 23,920 persons.

Change in Promotion Rules on the New Haven.

THIRTY days' notice has been given the brotherhoods of locomotive engineers and firemen by the New York, New Haven & Hartford for the division of engineers into six grades and the seniority rule governing promotions in service will be abolished. This action may produce a somewhat serious labor situation, as the employes' organizations, through their leaders, are canvassing the general situation and are not likely to give way without a protest.

President Willard Bars Liquor from Private Car.

PRESIDENT DANIEL WILLARD, of the B. & O. Railroad, has banned the use of intoxicating liquors on his private car. No matter what the taste of his guests on tours in his car, no liquor is served. Graps juice is the staple beverage, aside from water, milk, coffee, tea or cocoa. The president aims to set his own total abstinence as an example for all the employes of the road. The road has rules forbidding the drink habit among the men.

Quick Lunch Trains.

THE Pennsylvania Railroad Company is going to make an experiment in the quick-lunch-on-wheels business. A steel passenger car is being fitted up and equipped for service as a quick-lunch car. The company will try it out on trains that do not carry dining cars, believing that it will answer a long-felt need. The car is intended to cater to the wishes and tastes of the traveling public who do not wish an elaborate meal.

Sanitary Inspection of Railway Trains.

REPORTS from Washington state that all sanitary inspectors of public buildings of the office of the Supervising Architect of the Treasury have been detailed to make sanitary inspection of railroad trains throughout the United States. These sanitary reports will be sent to the Public Health Service for action.

In announcing the new orders, Acting Secretary of the Treasury Allen explained that because of the great measure of protection obtained for the entire people through train and steamship sanitation the work is to be extended. The railroads had shown a willingness to co-operate, he said, and to remedy any conditions complained of.

Telephone Dispatching.

AT the recent Western Electric Telephone Specialists' Conference, G. H. Heyer, railway telephone engineer of New York, said:

"There are approximately 285,000 miles of railroads in the United States and Canada. Train movements from 1851 to 1908 were governed by telegraph. The first telephone dispatching was tried in October, 1907. To-day there are some 70,000 miles of railroad operated by telephone. Many large roads are now nearly fully equipped. Among them are the Lackawanna, New York Central Lines, Lehigh Valley and Atchison.

"Forty per cent more work can be done by dispatchers with the telephone. Some roads report a saving on an average of an hour and a half in running time on all freight trains. This amounts to about $14,000 a year for each 150-mile section.

"Trains are being equipped with portable telephones so that the train crews can talk with the dispatcher. Iron box telephones at the sidings speed up the freights and save overtime. On many of the lines all but the through traffic is handled by the telephone."

The Car Movement.

THE latest report of the American Railway Association regarding the car surpluses and shortages in the United States, shows that on August 15th, there was a total surplus of 69,253 cars as against 69,716 cars for August 1st, and 58,623 cars for August 15th, 1912. Compared with the preceding period, there was a decrease in the total surplus of 463 cars, made up as follows: An increase of 3,083 in box, 163 in flat, and a decrease of 517 in coal, and 3,192 in miscellaneous car surplus. The increase in box car surplus is in Groups 1 (New England Lines), 4 (the Virginia and Carolinas), 5 (Kentucky, Tennessee,

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Mississippi, Alabama, Georgia and Florida), 6 (Iowa, Illinois, Wisconsin and Minnesota), 8 (Kansas, Colorado, Oklahoma, Missouri and Arkansas), 10 (Washington, Oregon, Idaho, California, Nevada and Arizona), and 11 (Canadian Lines). The increase in flat car surplus is in Groups 2 (New York, New Jersey, Delaware, Maryland and Eastern Pennsylvania), 4 (as above), 7 (Montana, Wyoming, Nebraska and the Dakotas), 9 (Texas, Louisiana and New Mexico), 10 and 11 (as above). The decrease in coal car surplus was in all groups, except 2, 7 and 9. The decrease in miscellaneous car surplus is in all groups, except 2, 7 and 10.

As for shortages, the record for August 15th, 1913, was 14,828 cars for August 1st, 11,261 cars and for August 15th, 1912, 14,722 cars. Compared with the preceding period there was an increase in the total shortage of 3,567 cars, of which 127 is in box, 414 in flat, 3,009 in coal and 17 in miscellaneous car shortage. The increase in box car shortage is in all groups, except 7, 8 and 9. The increase in flat car shortage is in Groups 2 and 3 (Ohio, Indiana, Michigan and Western Pennsylvania), 4, 5 and 6. The increase in coal car shortage is in all groups, except 6 and 9. The increase in miscellaneous car shortage is in Groups 1, 3, 5, 6, 10 and 11.

Compared with the same date of 1912 there is an increase in the total surplus of 10,630 cars, of which 8,197 is in box, 650 in flat, 3,148 in miscellaneous, and a decrease of 1,365 in coal car surplus. There is an increase in the total shortage of 106 cars, made up as follows: An increase of 2,335 in coal, and a decrease of 697 in box, 812 in flat and 720 in miscellaneous car shortage.

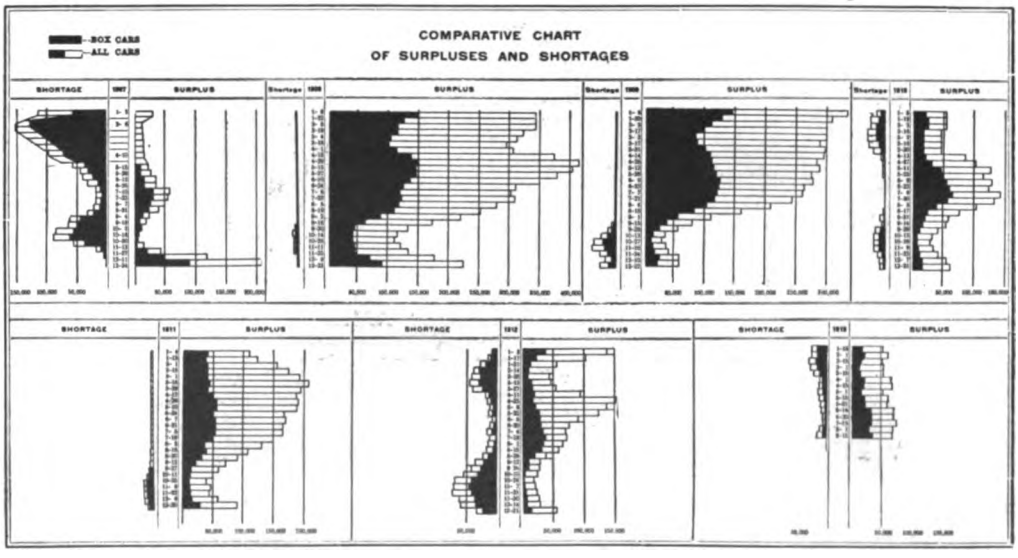
Darius Miller on the Car Situation.

IN reply to an editorial assertion in a Chicago newspaper that the annual car shortage is a puzzle Darius Miller, president of the Burlington system, said:

"There is nothing mysterious about alleged car shortages, as a matter of fact there has not been for several years any real shortage in the number of cars needed at any time. The trouble is that cars are not kept moving. This is caused by unnecessary delays in loading and unloading shipments, and by some smaller roads in detaining for their own use cars of other systems, but it is not always the smaller roads that are guilty of this so-called 'car steal.'

"Another factor is the way goods are marketed, particularly grain. During July, much of the grain of the entire country served by the Burlington road was sent to market. In July of last year, we loaded 8,682 cars with grain while for the month just closed we loaded 15,100 cars. All of the growers of grain apparently wanted their product to market during the one month and such unusual concentration would cause a car shortage on most any road. If all business were concentrated in this way in a brief period there would never be cars enough made to answer the condition. And this is a condition we cannot control.

"Barring this unusual concentration of traffic offerings, which do not occur often, there is comparatively little complaint. If all of the cars in the country were promptly handled by railroads, shippers, and everybody having to do with traffic, there would be no shortage; there are enough cars. The real trouble is not mechanical but human, that is, lack of co-operation. Last year the Interstate Commerce Commission, recognizing that the railroads were not the only factors in alleged car shortages, urged the shippers of the country to help keep the nation's business moving by prompt loading and unloading of their goods, releasing cars quickly to railroads and to keep them moving. The railroad commissions of California, Illinois, Oregon, Washington and other States gave similar assistance. Shippers are coming to realize this condition and are responding by putting their shoulders to the wheels of co-operation. For several years railroads have been buying equipment as fast as it could be manufactured, and careful statisticians say the total number of cars if kept moving would take care of all business. With co-operation among railroads, shippers, public authorities and the press, car shortages would be practically unknown."



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Safety on the New York Central.

THE New York Central Lines continue to give increasing attention to the question of safety. The latest issue of their enterprising magazine on this subject shows improvement both as to subject matter and illustrations, and is replete with information tending to help employes develop a more consistent and effectual safety habit.

That the efforts of the company have borne a satisfactory fruitage is indicated by the fact that on the New York Central road a total of eighteen fewer employes were killed on duty during the first four months of 1913, than during a similar period in 1912, indicating a decrease of 31 per cent in the casualty record; while there was a total of eighty-eight fewer employes injured by a like comparison, or a decrease of 12 per cent. This record becomes more significant when it is understood that the decrease in injuries which it represents, was made despite a considerable increase in business transacted. On the Lake Shore and Michigan Southern Railway even a greater improvement is noted.

Two photographs are presented herewith illustrating the interior of the New York Central Lines safety equipment car. This car was put into commission on July 30, and is being sent over the entire system for all employes to inspect. It contains a large number of models showing how machinery should be safeguarded, with photographs illustrating the right and wrong way of performing work. On the first two days that the car was opened it was visited by 600 men. Lectures are given in another special car accompanying the exhibit.

The exhibit car was constructed from a standard baggage car, is finished in white enamel, and has a floor covering of linoleum. Along both sides, about three feet from the floor, is a shelf which is finished in mahogany, and on which the various models are placed. On the side walls, a couple of feet above the shelf, is a double row of neatly arranged photographs. On one side of the car are a number of photographs which show unsafe practices which commonly cause accidents resulting in injuries to the employes and others. Alongside of each picture is another one showing the safe practice which if it had been followed would have prevented the accident. This collection of photos is based on those causes which statistics covering the past two years show to have been the most prolific sources of accidents.

The models which are shown cover safeguards to shop machinery and also include water gauge glasses of an approved and safe type, and models showing the proper way of applying railings to engine house turntables and to transfer tables; also of safeguarding stairways. There are a number of signs in the car which are intended to catch the visitor's eye and emphasize certain facts in connection with safety first. Among these are the following:

"It pays to do your work the safe way."

"The most important machine is man. Get the safety habit."

"Thirteen thousand miles of railroads—150,000 employes. We aim to make them all safe."

"Statistics show that by far the greater number of injuries are caused by unsafe practices on the part of employes."

The following illustrations of defective tools shows the manner in which the New York Central Lines are calling their employes attention to the danger connected with the use of such tools. Attention is called to the fact that tools in this condition should never be used, and that hundreds of shopmen have been injured because of their neglect in making reports regarding defective implements.

Another photograph, herewith produced, strikingly illustrates the protective effectiveness of goggles worn by employes in the performance of certain classes of work. The cracks and breaks in these goggles show where hard material has hit

INTERIOR VIEW OF NEW YORK CENTRAL LINES SAFETY EXHIBIT CAR WHICH WAS PUT IN COMMISSION ON JULY 30TH, AND WILL BE SENT OVER THE ENTIRE SYSTEM FOR THE EMPLOYES TO INSPECT.

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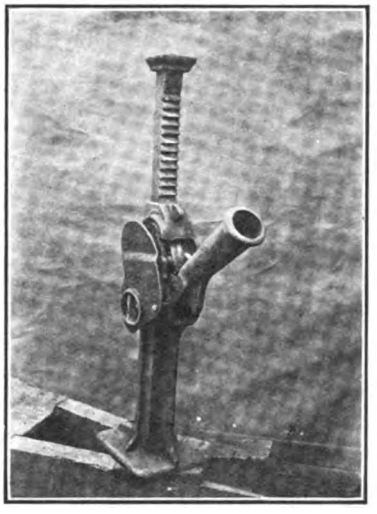
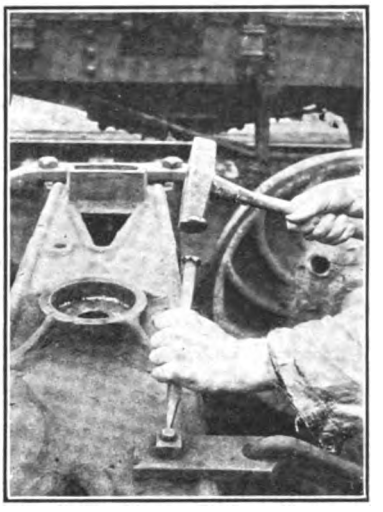


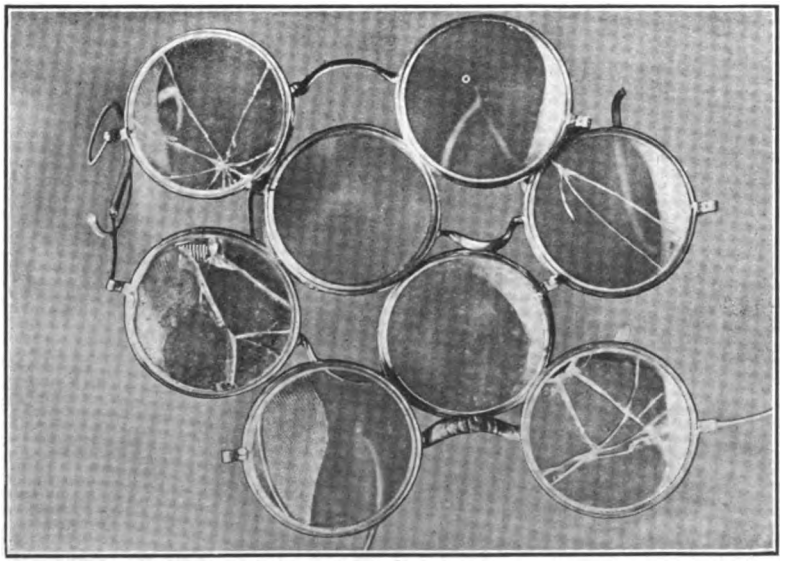
A Defective Jack.



A Defective Hammer and Chisel

Tools of This Character are Condemned for Use by the New York Central.

them with such force as to probably have destroyed the sight of the man wearing them, had his eyes been unprotected at the time. In referring to this illustration the safety committee calls attention to the fact that dozens of other pairs of broken goggles could be shown in the same condition if space permitted. These goggles are now supplied chippers and grinders in shops to reduce eye injuries, and the company urges men engaged in this work to avail themselves of the protection afforded by the glasses, which are furnished free of charge. The necessity for their use is evidenced by a statement that on a single line of the New York Central system last year, there were more than 500 cases of eye injuries to shopmen.



Goggles Which Have Been Cracked or Broken by Flying Particles of Hard Material While Worn by Employes, Showing Their Protective Value in Certain Classes of Work.

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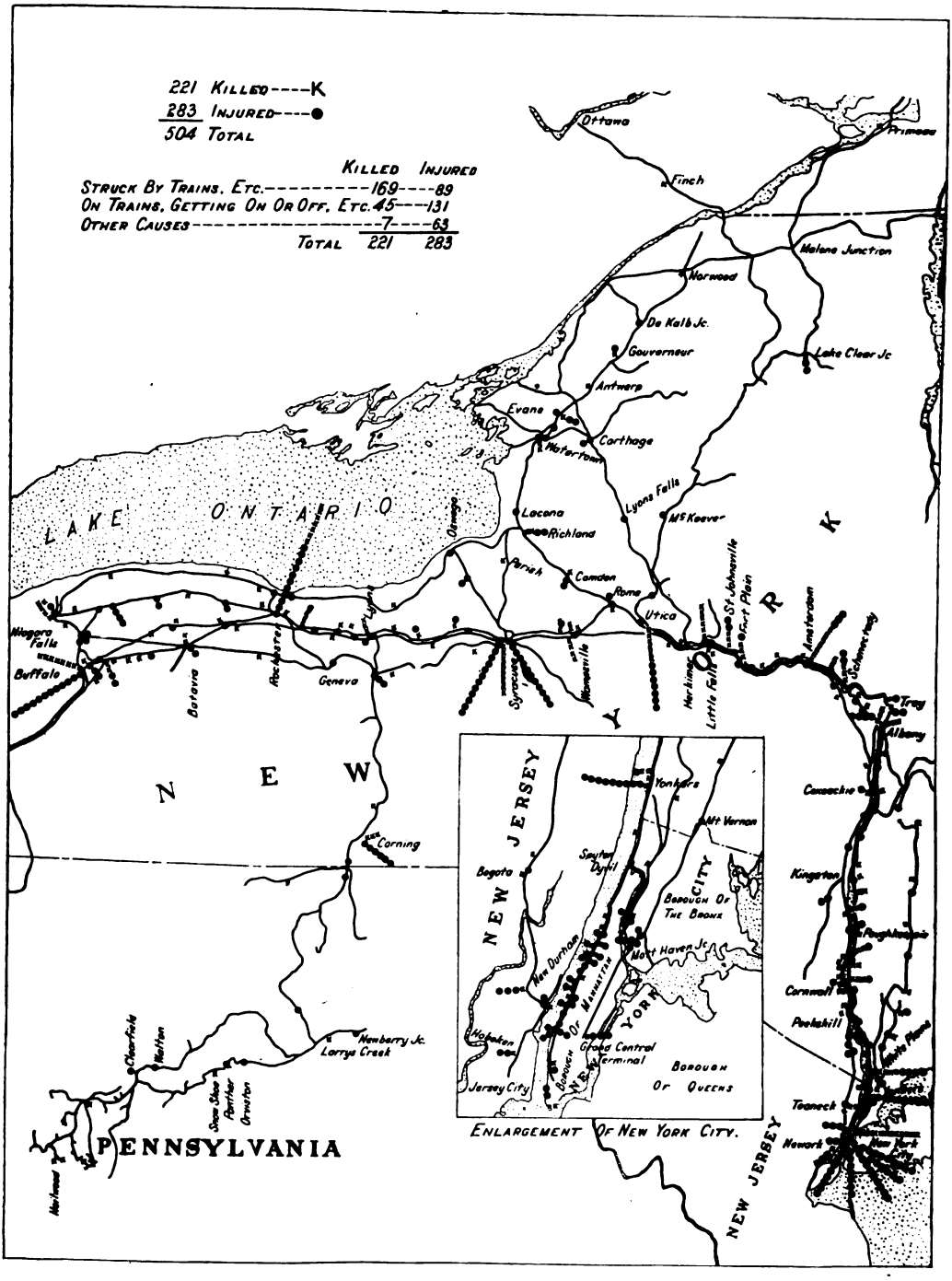
Trespassing Casualties on the New York Central.

THE following chart, prepared by Frank V. Whiting, general claims attorney of the New York Central Lines, graphically illustrates the injuries to trespassers during the calendar year 1912.

The New York Central has been making a strong effort to prevent accidents to trespassers, but the results have not been highly encouraging owing to the lack of co-operation on the part of local authorities. The worst feature of the trespassing evil is that the majority of those injured or killed, are not of the tramp or hobo variety



LOCATION OF ACCIDENTS TO TRESPASSERS ON THE NEW YORK CENTRAL AND HUDSON RIVER RAILROAD DURING THE CALENDAR YEAR 1912.

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as is commonly supposed, but are in many instances, regularly employed and well-to-do respected citizens. Thus the problem may be seen to be a local one, and one in which local authorities should take an active interest.

Up to the present time, however, it appears largely impossible to have magistrates deal with this question in such a way as to discourage further trespassing. Other roads besides the New York Central are giving this matter increasing attention, and it is to be hoped that public officials will show a livelier appreciation of their responsibility by a more active and effective co-operation. Surely with so much criticism against railway casualties, much of it emanating from official sources, those in authority should be more than willing to employ every means by which a greater part of such casualties can be avoided.

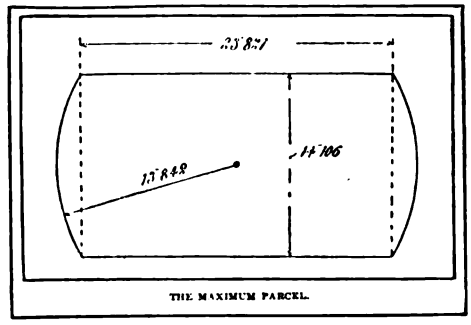
Maximum Parcel Size Under the Parcel Post.

IN discussing the maximum size of a package which may be carried under the parcel post regulations, Naval Instructor D. W. Taylor, writing to the *Scientific American*, has the following to say:

"If we have a rectangular package and take as its length the perpendicular distance between the planes of the ends, we are using for the length not the 'greatest' distance in a straight line between two ends, but the 'least' distance between the two ends. The greatest distance in a straight line between the two ends of a rectangular package is obviously the diagnoal of the solid.

"In this case the largest rectangular package that can be accepted under the literal wording of the parcel-post regulations is, using dimensions to three decimal places, 10.286 inches square and 27.214 inches long on an edge; the diagonal being 30.857 inches. Such a package will contain 2,879 cubic inches only.

"The very largest volume that can be accepted for parcel-post transmission under the regulations will be a cylinder with spherical ends, as indicated in the enclosed sketch, which gives an axial section of the solid.

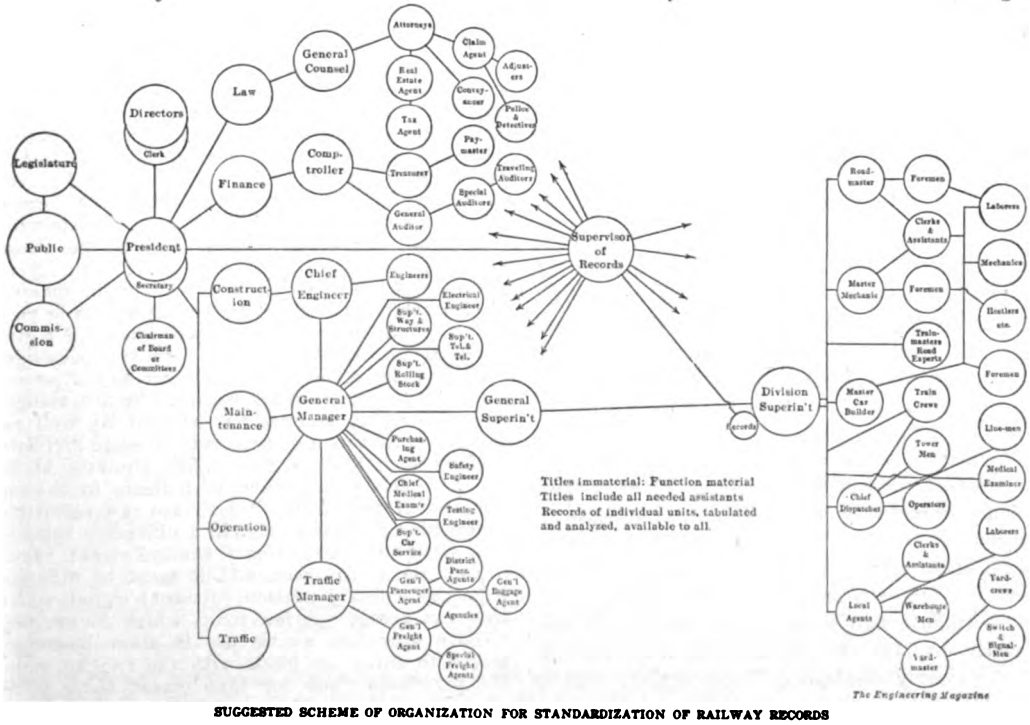


THE MAXIMUM PARCEL.

"The diameter of the cylinder will be, to the third decimal place, 14.106 inches, and the length of the side, to the third decimal place, will be 23.821 inches, the cubical contents being 4,032.19 inches."

Standardizing Railroad Records.

IN the *Engineering Magazine* for August, Mr. F. Lincoln Hutchins discusses a practical plan for standardizing railroad records. He points out that the only criterion of efficient management, is transportation produced with the least expenditure of power or productive effort, and that such results cannot be obtained without systematic railroad records to be used as a basis for corrective effort. While the roads all have an overwhelming abundance of reports, there is scarcely one, he asserts, that complies with the methods of systematic statistical records, or gives



SUGGESTED SCHEME OF ORGANIZATION FOR STANDARDIZATION OF RAILWAY RECORDS

From the "Engineering Magazine."

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a true indication of the operation it is supposed to represent. He points out that the purpose of systematic records is to clearly bring out all evidences of waste so that correct methods might be applied. This necessitates standards, which may be theoretically established by evolving the typical cases of operation based upon potential possibilities.

Mr. Hutchins believes that the remedy for wasteful methods is to be found in the establishment of a systematic record bureau which will be able to place on the managerial desk from day to day, a current record of all operations, with a statement of the waste incurred. He believes that the manager having a daily, weekly or even monthly comparison of all divisions, each with respect to its own past performance, arranged upon the twelve month average plan (whereby all climatic and seasonable trade elements would be equalized) will have a larger understanding of the operation, a better knowledge of the comparative efficiency of his division officials, and a more perfect means of control, than any amount of personal observation could give him

He believes railroads are peculiarly adapted to develop the required records and that the first necessity is to divorce records of operation from financial records and that it is important the parties who are to be judged by the records, should not have control of them or their compilation. The present universally pursued plan of departmental records under the control of the departments themselves, leads, he asserts, to duplications, misapplied units and confusion in final results.

The absence of any definite plan in the organization for a record bureau, is one of the obstacles to the adoption of a scientific plant by which unit records may be obtained, tabulated and analyzed, and Mr. Hutchins suggests that a scheme of organization as outlined in the following diagram, would make it possible so to co-ordinate and handle records as to make it well nigh impossible to ask any questions regarding operations, which the record bureau could not immediately answer from its accumulated units without necessitating special reports and inquiries.

Railway Signalling on the Pennsylvania Railroad.

IN an address before the Railway Club of Pittsburgh, Mr. A. H. Rudd, signal engineer of the Pennsylvania Railroad, discussed at length, the new system of signals which have been put in operation on this great system. In view of the high standard of safety in train operations on the Pennsylvania, Mr. Rudd's description is of more than ordinary interest. He said, in part:

"We have started a new system with certain fundamental principles, the first of which is that a signal imperfectly displayed or the absence of a signal at a place where a signal is usually shown, must be regarded as the most restrictive indication that can be given by that signal. We have tried to design the signal so that if it is imperfectly displayed it will show in itself that it is not properly displayed. I will explain that a little later.

The second principle is that a red light or arm horizontal indicates stop unless qualified by a more favorable color or angle of arm. When this scheme was first proposed there was a great deal of opposition to it because it required an engineman to run past a red light in almost every case —in every case, in fact, where a signal indicated a clear block with one exception. It had been done for years with interlocking signals, but we had not done it with automatics and it was thought probably a bad thing to extend the use of the red light to the automatic signals. I think results have proved that it is not much of a mistake. Remember, then, that a red light means stop, unless qualified by a more favorable color indication.

Third: A given aspect conveys the same information at all places, at all times and under all conditions, so that an engineman knowing the physical characteristics of his road and the location of his signals may always be sure that he is obtaining the same information with the same signal aspect.

Fourth: The signal must indicate where and when trains must stop and the action to be taken after stopping—whether or not it indicates the condition of the block and, if it does, whether the block is occupied or clear. It must indicate when to prepare to stop or slow down and how fast trains may run under the changeable conditions at interlockings. It must show in itself when it is properly displayed.

Fifth: This information is all that is needed as to conditions ahead to enable an engineman to run safely, confidently and expeditiously if he obey the indications.

To give this information the signals are divided into four classes—stop, caution, proceed and permissive. The stop signals are all red. The proceed signals show a white light in combination with red or green. The caution signals show a green light in combination with a red. And the permissive signal shows two horizontal green lights in combination with the red. The permissive signal is probably needed more on the Pennsylvania than on any other road. The great majority of the roads of the country under manual block issue a card to enable the engineman to pass a stop signal to enter an occupied block. We give a signal for it. We do not permit a passenger train to enter an occupied block; we do not permit a freight to enter a block occupied by a passenger train; and this practice has been pretty well extended, so that as a general rule on some divisions preference freight is run under absolute block. We have felt it necessary to indicate to the enginemen of fast trains, which are not permitted to accept a permissive signal, a difference between that signal and an ordinary caution signal. It is a stop signal to them, and it must be different from the ordinary caution (distant) signal, which they can accept. A few roads which do use permissive operation as we use it allow passenger trains to enter the block with the freight under the permissive, and for that reason there is no need for them to make any difference in the signal.

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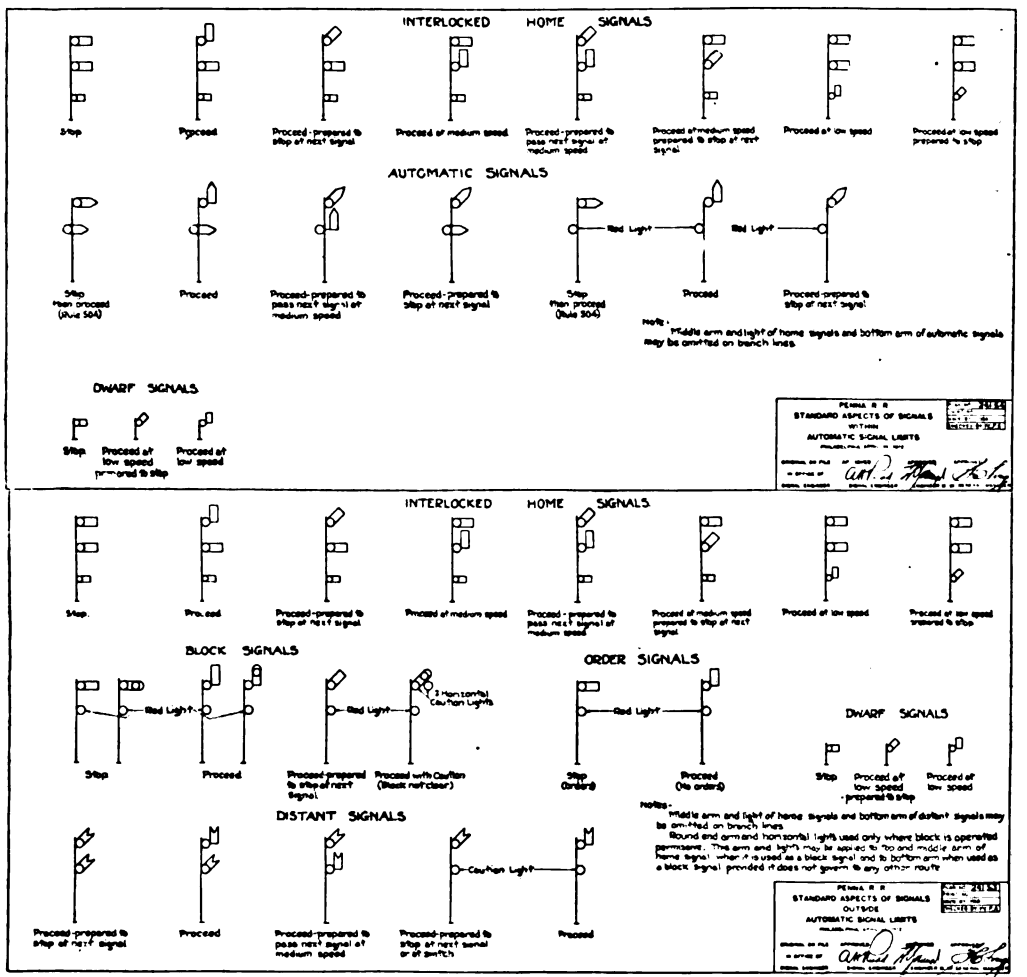
Stop signals are divided into two classes, stop and proceed, and stop and stay. Stop and proceed signals are the ordinary automatics to be passed as per Rule 504, looking out for a train in the block, switch open, broken rail, etc. These are identified by the staggered lights, diagonal lights, with pointed arms. The pointed arm may not be necessary, but the New York Central has used it a long time. In order to get a system which would be uniform on the Pennsylvania and the New York Central and some of the other roads which operate with us jointly we adopted the pointed arm.

The stop and stay signals have vertical lights, either two or three, with square or round end arm, so that when an engineman comes to a signal with a pointed arm at stop he can stop and proceed; if he comes to another with a square or round end arm he knows he must stop until he receives further instructions.

Caution signals are divided into two classes. First, those indicating one block clear, the next signal stop; second, those indicating the position of the next signal, but also indicating that they give no information as to the occupancy of the block. In automatic blocks a clear signal indicates that the track is clear to the next home and that the next home is clear. In manual block territory under permissive operation you might have a clear distant, but there might be a train between the distant and the home. So that we have added the fishtail arm with vertical green lights. These signals are distant signals purely and never go to stop and never indicate the position of the block, and therefore they do not show a red light. The rule is that a signal imperfectly displayed or the absence of a signal must be regarded as the most restrictive indication that can be given by that signal. Now if the active light goes out and this signal is a stop signal, the most restrictive indication is stop. Therefore we display a red light with the active light out. With the distant signal the most restrictive indication is caution; therefore we show a green light if the active light is out, so that the signal in itself shows what its most restrictive indication is.

Permissive signals indicate positively to a man that the block is occupied. The clear signals indicate clear track, except the clear fishtail distant, which does not indicate anything about the track.



THE STANDARD SYSTEM OF SIGNALS EMPLOYED BY THE PENNSYLVANIA RAILROAD, BOTH WITHIN AND OUTSIDE OF AUTOMATIC SIGNAL LIMITS.

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Now clear signals may govern, and do govern, the speed at which trains may pass an interlocking. The top arm is the top speed, the bottom arm is the bottom speed, and the middle arm is the middle speed. In practice the top arm clear governs the authorized speed at that point, the bottom arm clear not to exceed 15 miles an hour, and the middle arm clear not to exceed 30 miles an hour. The old scheme of signaling routes has been abandoned, and we have come to what may be known as speed signals at interlocking, where conditions change on account of the changed position of switches. We do not attempt to signal speed out on the road, where the curvature is fixed and the grades and the stations, etc., are established. But where the conditions change at interlocking we signal the speed.

(Note diagram on preceeding page.)

The indication "Proceed at slow speed" is given for movements not exceeding 15 miles an hour with traffic when next signal is clear. An aspect with the bottom arm at 45 degrees is what we call the "know nothing" signal, or anything you please. Proceed with extra caution prepared to stop. It may govern to an occupied track, it may govern against traffic over a short crossover; at any rate, it indicates that you may pass the stop signal above it, which governs the through movement, but you must look out for yourself.

The dwarf signals govern the same way as low-speed signals—stop; proceed with caution, looking out for anything ahead; and proceed with traffic, your next signal is clear.

The fishtail signals do not indicate the condition of the block.

You will notice that they are all consistent, they all display a red light in combination with others, where they indicate block conditions, except the one with the green over white, and that bothers more people than anything else in the signal business. It is a poor aspect, it is inconsistent. But it is the best we can get. It is a pretty valuable signal on the P. R. R. The Lines West do not use it; they claim they do not need to use it. A great many others do not. The Pennsylvania does and the New York Central does, and I believe the B. and O. does.

This system as it stands I believe will remain unchanged on the Pennsylvania Railroad for a considerable time. Experience has shown that it is all we need, except for some few changes which I hope they will let us make. We have adopted a purple light to show the siding derail open. Some years ago the General Manager issued instructions that switch lights on sidings and in yards should not be red, that they were liable to confuse the main line runners; and that left us when we came to study it only one color to use for derails, and that was purple. It is a short-range light, similar to red, and yet it cannot be mistaken for it. We still have the red for the dwarf signal light next to the main track, governing movements against traffic on the main track and to the main track from sidings and yards. I hope some time to see these changed to purple, removing all low red lights except on main line switches.

And I have another "hobby," and that is green for clear and yellow for caution. A good many railroads in the country have adopted it, and to my mind it has very decided advantages over the present practice. That is where we have a white light in our diagrams, substitute green, and where we have a green light substitute yellow, making in that case the yard lights yellow and lunar white and the main line switch lights red and green, so there will be no confusion to main line runners with any siding switch light.

Our Lines West and a good many of the western roads omit the middle arm and just have two arms, using the top arm as shown in these drawings, and the second arm at 45 degrees for low speed and vertical for medium speed. I do not see how any road that still has a home and distant signal can adopt that, because the home and distant signals show red and green, and that would mean the same as proceed at low speed. The green light in the stop signal must be eliminated before any road can adopt the simplified two-light system all the way through. But that is ideal, to have two lights and never less than two. Then if an engineman comes to a one-light signal he knows it is improperly displayed. At present with us he knows that if he gets one light on a signal it is improperly displayed. All the automatics have two lights, all the distant signals and manual blocks have two lights, and at certain interlockings he has three, and the fact that there are three there is shown him by the display of two arms on the distant signal, so when he comes to a two-arm distant signal he knows the next signal is a three-light signal. It helps the engineman to determine whether he has a light out at the home, and when the system is well learned there will not be very many enginemen running by signals because there is a light out.

We also have slow and stop boards and track tank signs showing lunar white and green. Then we have the coon tail. The coon tail is a very valuable adjunct to a coon. It is a very valuable adjunct to us in spots. We issue instructions that a man should slow down and then we put a coon tail up to show him where he should slow down. It is quite a good deal of assistance in marking slow points along the road.

As to the means taken to insure the accuracy of the indications, we are installing all our new automatic work with alternating current track circuits, because we find that power and current from trolley road lines interferes with our direct current track circuits. There are precautionary measures that can be taken with D. C. circuits, such as double relays and cutting circuits up, which have been tried with fair success. The real cure for the foreign current is the A. C. track circuit, and we are not only installing all new work that way, but changing over some of the old. This carries with it electric lights on the signal and A. C. motors.

The cost of installation is heavy. It runs for double track about $3,000 per block, 4,000 or 5,000 or 6,000 feet long; for the two tracks probably $8,000 a mile. I suppose some of the expense end of that will come out of the 5 per cent. advance in rates!

Operating and maintenance costs are below anything we have had. The electro-pneumatic signal runs about $160 a year per block. That on a four-track road is $640 a mile. The D. C. motor runs about $90, and in some fortunate cases we have had $75 quoted, but we are from Missouri. The A. C. runs not over $60. This means a saving of $400 a mile over the old electro-pneumatic. While it is more expensive than the D. C. motor, when the difference in cost of installation is considered, we think it is safer.

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Mechanical

The Illumination of a Modern Passenger Car.

IN an article by Mr. L. Schepmoes, appearing in the "Safety Heating and Lighting News," the practical side of illuminating engineering on railway cars, is dealt with at length. Mr. Schepmoes holds that the value of psychology in the study of illuminating engineering, must not be entirely ignored. As an illustration we invariably find the point of most brilliant illumination in a room produces the greatest attraction to the eye. If the dining table is brilliantly illuminated, we are instinctively drawn to notice it; but even with a dainty service and a fresh arrangement of flowers, the effect is lost if the illumination is so arranged as to direct a maximum light on the wall, or other part of the room, away from the dining table. It is, therefore, important that the lighting of a dining car be so arranged as to make the dining table the center of composition and the most attractive part of the room.

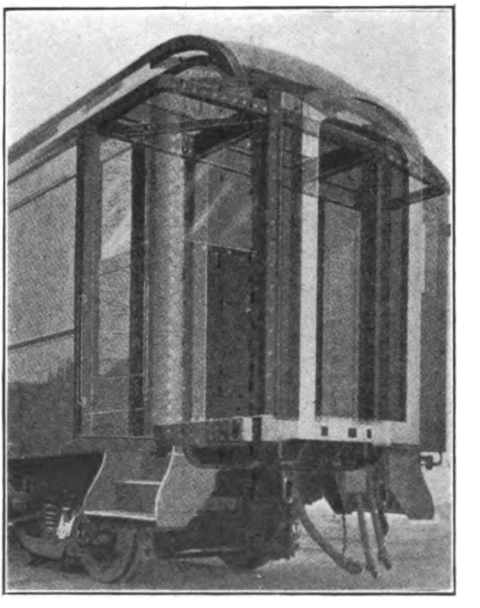
After discussing the various methods by which this can be best accomplished, and in which indirect lighting, table lamps and bracket fixtures are disregarded as being either inadequate or containing no particular advantage, Mr. Schepmoes arrives at the conclusion that the most satisfactory method used to illuminate dining cars is the one wherein the reflector-plate type of fixtures are mounted under the side decks over each table. A large number of cars are now equipped with this type of fixture and give very good satisfaction. The illustration shows a dining car equipped with one form of this type of fixture. The light source is entirely screened from the vision of the occupant of the dining table chair. When we say "entirely screened" we mean that all active light is screened from the vision although colored art glass is employed at the sides of the fixture to give a slight color effect to the fixture as well as adding to the cheerful appearance of the car.

I am convinced that no better illumination on the dining tables of a railway dining car can be obtained with any other method. The advantages of this method of illumination by reflector-plate units is due to the absolute control of the light rays, by re-directing the maximum flux of light from the lamp downward on to the dining table, producing an even illumination over the entire top of the dining table.

DINING CAR EQUIPPED WITH REFLECTOR-PLATE FIXTURES LOCATED OVER DINING TABLES, AND BOX TYPE FIXTURES IN CENTER DECK.

New End Construction for Pullman Cars.

THE Pullman Company has recently developed a much more substantial end car construction for both wooden and steel equipment, which, it is believed, will better withstand the shearing effect that a heavy steel underframe of one car has upon the superstructure of another, when this underframe laps over that of the car ahead in a collision. The accompanying illustration gives an idea of the method involved.



THE PULLMAN COMPANY'S NEW END CONSTRUCTION FOR BOTH STEEL AND WOODEN CARS.

The principal feature of this new design, which is the invention of Richard Deam, general manager of the Pullman Company, is that of an I-beam bent in the form of a "U," the legs of which extend upward from apertures in the platform casting. Two of these U-shaped I-beams are applied to each end of the car in the manner shown, one leg forming the door post at the entrance of the car, while the other forms the door post for the opening between the cars at the platform end sills. The U-shaped members are made from one continuous I-beam instead of being made up of riveted sections, in order to eliminate any possibility of riveted joints failing. With this construction it is readily seen that in case of collision, should one underframe override that of the next car, its progress will first be obstructed by the legs of the U-beam at the bumper sill, which as they bend will tend to lift the whole car body, thereby offering greater resist-

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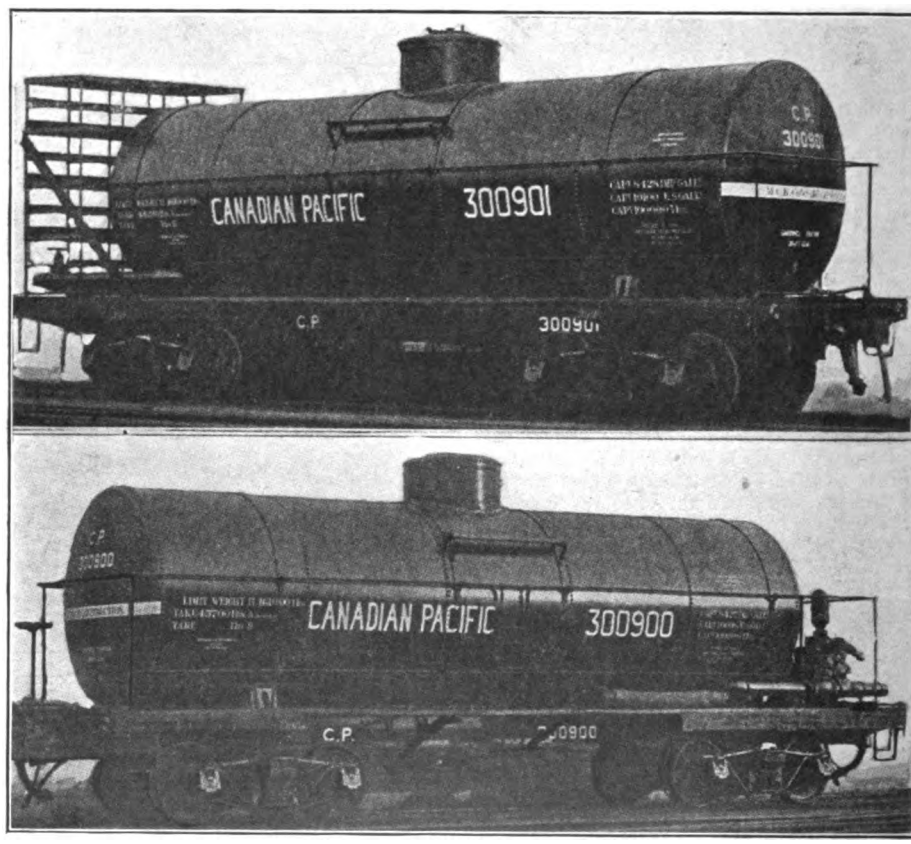
ance to further advance of the overriding car. If these should fail there would still be the second leg of the U-shaped member, together with the strengthened car end, to further retard the progress of the overriding underframe.

FIRE FIGHTING CARS ON THE CANADIAN PACIFIC.

THE Canadian Pacific has recently constructed two tank cars specially equipped for fire-fighting. Apart from the end arrangement of the auxiliary equipment, they are identical in construction. Each car carries a tank of 8,428 gallons capacity, and on the end of one car is a duplex fire pump using steam from the locomotive boiler and on the corresponding end of the other car, a rack construction on which can be carried 6,000 feet of 2½-inch fire hose. As indicated by this equipment, the cars are to be operated together.

In both tanks the suction is through a 3-inch pipe near the bottom and to one side of the center line forming a U-bend, the open end of which drops down to within an inch of the bottom of the tank. The suction pipe, from the point it leaves the tank, passes along the side of the tank on the deck to the open platform end. In the rack, this terminates in a cap end, to which can be connected a short section of 6-inch rubber hose supplied with the car for connecting up with the pump car, in which pump car the connections are somewhat similar with a capped end pipe, but this short length of pipe from the tank to the capped end, contains a 6-inch "T" connection to the pumps. In both cars the connecting length has a globe valve.



FIRE-FIGHTING TANK CARS, THE FIRST EQUIPPED WITH HOSE RACK AND THE SECOND WITH DUPLEX PUMP.

A Portable Railway Concrete Plant.

ENGINEERING AND CONTRACTING, contains an interesting account of a portable railway concrete span recently constructed by the St. Paul Railway, for use in elevating its tracks along a stretch of 2.4 miles in Chicago. In the promotion of this work, the retaining walls proper are built independent of the footing construction and any time afterward, with an entirely separate plant.

The forms are constructed in a central yard and are shipped on flat cars to the work. A locomotive crane on the track handles the form panels.

In the concreting of the walls, however, the employment of a car-mounted chuting tower and mixer was put into service and constituted the special plant feature of the work, as shown in the illustration. It consists of a mixer and steel hoisting tower mounted at one end of a 40-foot flat car on which, at the opposite end, is a boiler.

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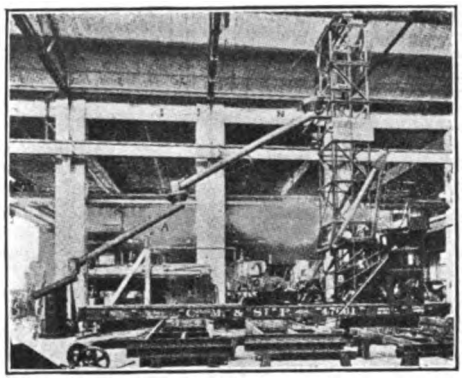


THE ST. PAUL ROAD'S PORTABLE CONCRETE PLANT, SHOWING CHUTING TOWER AND MIXER READY FOR USE.

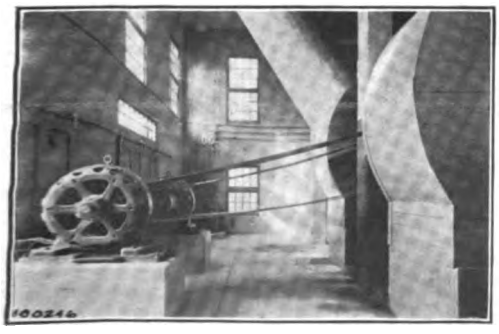
and between boiler and tower an engine. The tower is hinged 6½ feet above the car floor and the upper part can be tipped down onto a support "A" above the boiler, so that its extension above the car floor is only 11½ feet. The mixer is arranged to discharge into a bucket "B" at the tower foot and this bucket is hoisted and empties into a hopper "N," from which chutes lead to the wall forms. The total height above rail of the tower erect is 36 feet and when the tower is lowered the clearance required above rail is 16 feet.

Pre-Cooling Refrigerator Fruit Cars.

FOR some time Pacific Coast railroads, which are engaged in the transportation of perishable fruits over long distances, have found it highly desirable to pre-cool the fruit before starting it upon its extended journey. More recently it has been determined that the pre-cooling of the cars themselves in which the fruit is transported, assists greatly in their preservation and operates as an economy in connection with the quantity of ice employed in refrigerating the cars.

The following illustration shows one of two sets of two 7-foot Sirocco blowers driven by 75-H. P. Westinghouse motors which are used by the Pacific Fruit Express Co., Roseville, Cal., for pre-cooling fruit cars previous to filling their refrigerators with ice.

Air is drawn from cooling rooms, in which the temperature is kept at about 18 degrees F. by direct expansion ammonia coils, and is forced into the cars, thus reducing their temperature.

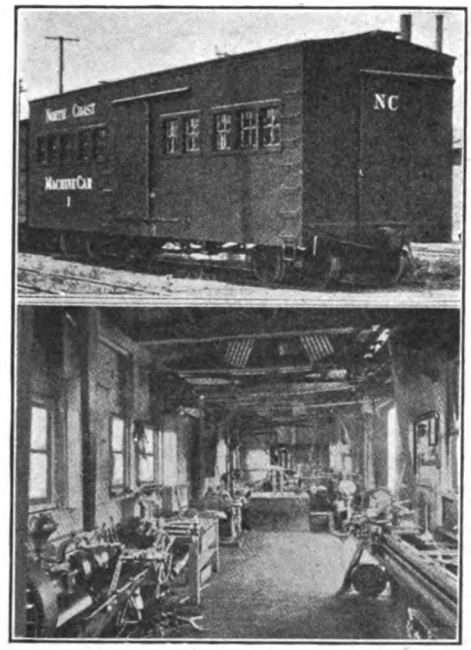


BLOWERS USED FOR PRE-COOLING FRUIT CARS.

By means of specially designed valves, also driven by Westinghouse motors, the air current can be reversed so that the fans can exhaust foul air from the cars previous to pre-cooling.

Machine Cars for Construction Work.

THE utilization of reconstructed or specially constructed cars to aid in the development of various railway operations, is on the increase. Not only are cars used for instruction purposes, such as those in which farming and dairy displays are made, and more recently for the purpose of safety appliance exhibits, but there appears a growing tendency to employ such cars, wherever possible, in the actual performance of railway work. In this connection, a machine car recently built by the North Coast lines in Washington, is an example. The car provides repair shop facilities for general use in connection with the laying of new track or other construction work, remote from such facilities.



EXTERIOR AND INTERIOR OF MACHINE CAR OF THE NORTH COAST LINE.

The accompanying illustrations give some idea of both its exterior and interior appearance. The equipment includes an old-cooled vertical gasoline engine, which is connected to a friction clutch and to the wheels of the car by sprockets and chain, making the car self-propelling, and permitting it to be moved from one station to another under its own power. The tool equipment is of such a character as to permit practically all kinds of repair work incident to track laying and ballasting operations.

New Mississippi River Bridge at St. Paul, Minn.

THE new Mississippi River bridge recently put in operation by the Great Western Railway at St. Paul, Minn., consists of

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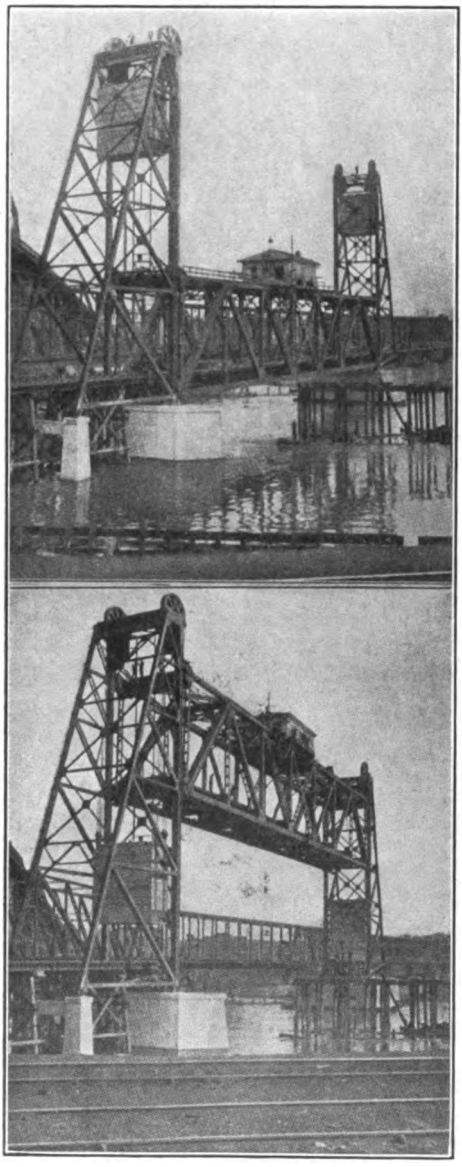
seven 79-foot deck plate girder spans; one 192-foot vertical lift span which will give a clear height of 55 feet above water; 170 feet of temporary trestle on the south end and 220 feet of temporary trestle on the north end, which is on a ten degree curve.



NEW MISSISSIPPI RIVER BRIDGE AT ST. PAUL, MINN., SHOWING THE NORMAL AND RAISED POSITIONS OF THE LIFT SPAN.

The new bridge replaces an old 412-foot draw span and three 225-foot through tress spans, all built in 1885 and reinforced in 1901, which on account of their light design and the increased weight of rolling stock, had to be replaced with a stronger structure. The accompanying photographs show the lift span in its normal and raised positions.

A Novel Extension Car Step.

THE following illustrations show the Crofut extension car step invented by U. E. Crofut, of Scranton, Pa. An important safety feature of this contrivance is that it can never be put down while the train is in motion or before the train has stopped. Another advantage lies in the fact that the step cannot be made to stay down when the trap door is closed, as the trap door is seated on a latch when closed allowing the step to automatically go up under the lower step on the car, and thus making it necessary for the train to be stopped before the trainman can reach the ground and operate lever on side of step. On account of the spring tension which is compressed to put the step down, the step would automatically remain up if the spring became inoperative.

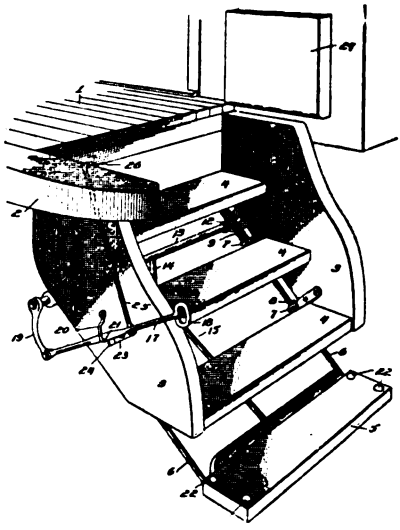


FIG. 1.

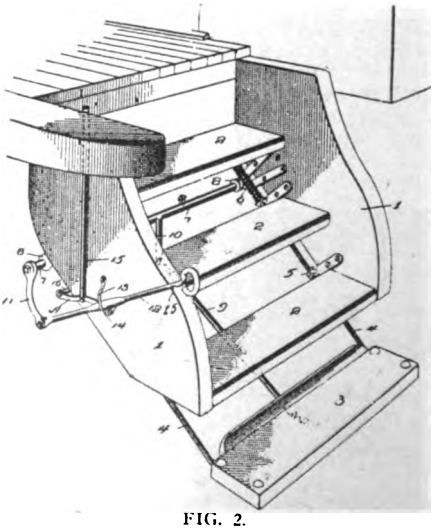


FIG. 2.

TWO VIEWS OF A NEW EXTENSION CAR STEP.

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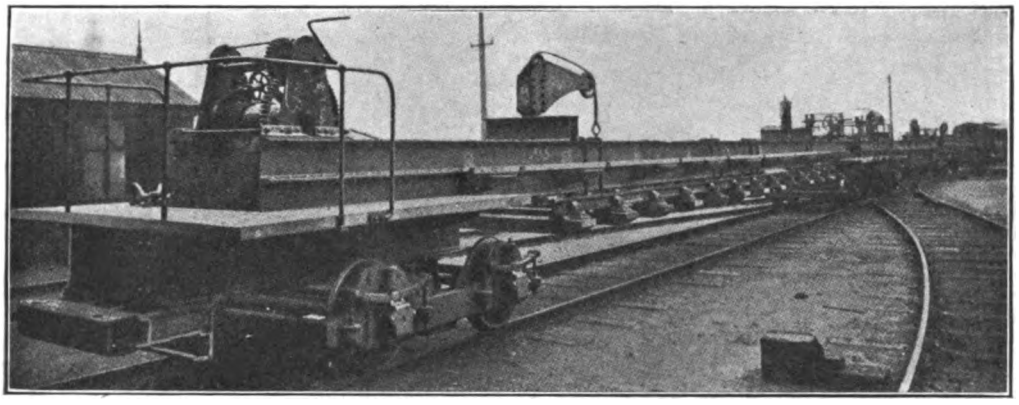
HAULING THE KEEL OF AN OCEAN LINER.

"CURRENT MECHANICS" presents the following interesting picture of an English railroad hauling the keel of a new 50,000 ton ocean liner. The carriage of such material constitutes one of the big problems facing British railway operations, as the steel parts of such vessels are made inland, while the actual construction work is done on the coast. In the accompanying picture, a specially constructed flat car in which the steel is really a part of the car is shown. It will also be noted that two cars with hoisting apparatus are also in attendance for the purpose of removing the keel at the end of its journey.



SPECIAL STEEL CAR CONSTRUCTED IN GREAT BRITAIN TO CARRY THE KEEL OF THE 50,000-TON STEAMER AQUITANIA.

Steel and Steel Underframe Passenger Equipment.

THE Special Committee on Relation of Railway Operation to Legislation, has issued a bulletin which covers, in a brief way, the development which has occurred in the employment by railways since 1909, of steel and steel underframe passenger equipment. The bulletin states that:

Four bills are pending in Congress requiring the replacement of wooden passenger equipment in steel. The periods suggested during which this is to be done, vary from January 1, 1915, to January 1, 1918.

In order to ascertain the progress of the building of steel and steel underframe passenger equipment, and to develop the cost of reconstruction in steel of the present wooden passenger equipment in the country, Circular No. 40 was issued to the railways on January 10, 1913.

Replies to that circular have been received from 247 companies, operating 227,754 miles in the United States, and 57,493 passenger equipment vehicles, with 1,649 under construction on January 1, 1913.

Replies have also been received from eleven companies, operating 24,718 miles in Canada, and 4,891 passenger equipment vehicles, with 517 under construction on the same date.

The estimates and percentages given hereafter apply only to the equipment operated by roads in the United States.

Attention is called to the following:

ACQUIRED.

	Total Number.	Percentages. Steel.	Steel Under Frame.	Wood.
1909	1,880	26.0%	22.6%	51.4%
1910	3,638	55.4	14.8	29.8
1911	3,756	59.0	20.3	20.7
1912	2,660	68.7	20.9	10.4
January, 1913 (Under construction)	1,649	85.2	11.5	3.3

Between January 1, 1913, and July 1, 1913, orders have been placed by railways for 1,140 passenger equipment vehicles. Of these 1,064, or 93.3 per cent, are of all steel construction, and 76, or 6.7 per cent, have steel underframes.

It will, therefore, be noted that the construction of wooden passenger equipment has practically ceased.

APPROXIMATELY IN SERVICE.

	Steel.	Steel Underframe.
January 1, 1909	629	673
January 1, 1910	1,117	1,098
January 1, 1911	3,133	1,636
January 1, 1912	5,347	2,399
January 1, 1913	7,271	3,296
Increase 1913 over 1909	6,642	2,623
Increase 1913 over 1909	1,055%	389%

APPROXIMATE COST OF REPLACEMENT.

	Number.	Average Cost.	Amount.
Postal	680	$11,000	$7,480,000
Mail and Baggage	2,724	10,000	27,240,000
Mail, Baggage and Passenger	679	10,000	6,790,000
Baggage and Passenger.	3,757	10,000	37,570,000
Baggage or Express	7,431	8,500	63,163,500
Passenger	23,692	12,800	303,257,600
Parlor, Sleeping, Dining	6,864	22,000	151,008,000
Business	774	15,000	11,610,000
Motor	325	20,000	6,500,000
Total	46,926		$614,619,100
Annual Int. charge at 5%			30,730,955

The charge to operating expenses under the classification of accounts of the Interstate Commerce Commission, assuming a value of $4,000 per vehicle replaced, will be $187,704,000.

Engineering Department of the University of Illinois Reports on Broken Rail.

THE railway engineering department of the University of Illinois, has recently made a report analysis on a broken rail from

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the Terminal Railroad Association of St. Louis for the Railroad and Warehouse Commission of Illinois.

The rail was of 80-lb. A. S. C. E. section, and apparently of recent rolling, the fracture occurring slightly more than two feet from the heel or joint, and perhaps about one foot from the end of the splice-bars. Whether the fracture was located over the tie or between ties, is not known.

The character of the break indicated brittleness of the steel, but no evidence of unsoundness, piping or other physical defect, was to be found by a minute examination of the fracture.

The only striking fact found by a chemical analysis of the rail, was the high percentage of carbon which was substantially twice the allowable amount. This, as it is pointed out, taken in conjunction with the low manganese and a normal phosphorous constituent (for Bessemer steel) would tend to make the rail brittle.

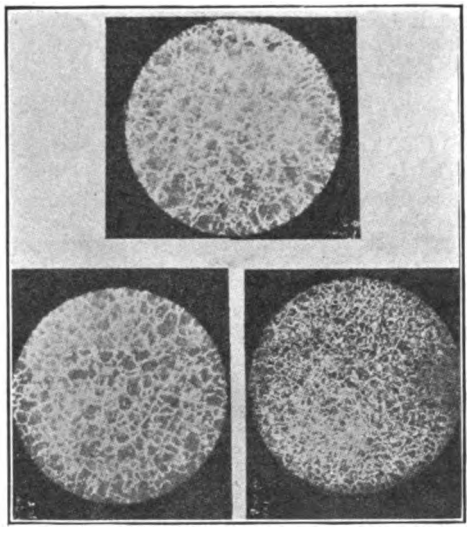

FIG. 1. Micro-photographs, showing structure in parts of broken rail.

The micro-photographs herewith shown (Fig. 1), were obtained by polishing the steel, etching with picric acids and photographing through a microscope of 100 diameters magnification. One photograph which was taken of the head web and base is indicated by circles A B and C in Fig. 2.

A Brinell hardness test was made upon the failed rail at the several points indicated in Figure 2, with the results as shown in the following table:

Brinell Hardness Tests on Failed Rail.
(For location of test spots, see Fig. 1.)

Location of Impression	Impression Millimeters Diameter of	Hardness Number
1	4.11	216
2	4.19	208
3	3.77	260
4	4.05	223
5	4.03	225

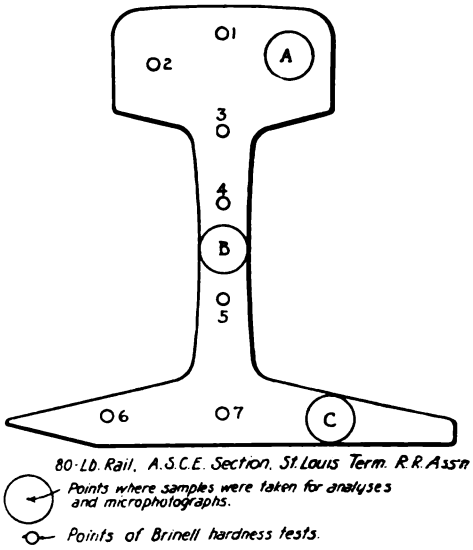

FIG. 2. Location of samples for an analysis and tests of broken rail.

6	4.19	208
7	4.23	204
	Average	220

Table 4.

Brinell Hardness Tests on 80-lb. Service Rail.

1	4.05	223
2	4.03	225
3	4.00	228
4	4.10	217
5	4.05	223
6	3.95	235
7	4.20	207
8	4.20	207
	Average	221

The Brinell test which is now a standard rail test, was made by a Brinell machine which presses a steel ball of 25-64 of an inch in diameter under a load or pressure of 6,614 pounds against the surface of the steel. The diameter of the impression left in the steel is measured, and the hardness number is proportional to and fixed by the diameter of this impression.

The following diagram graphically illustrates the results of the test:

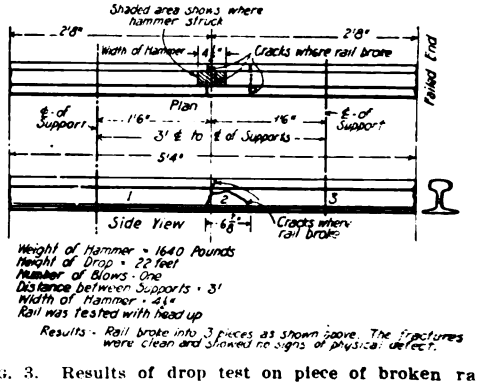

FIG. 3. Results of drop test on piece of broken rail.

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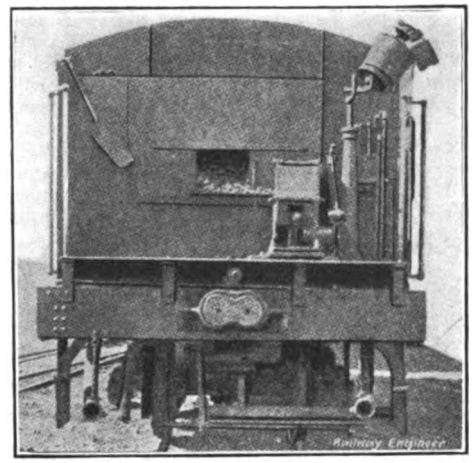
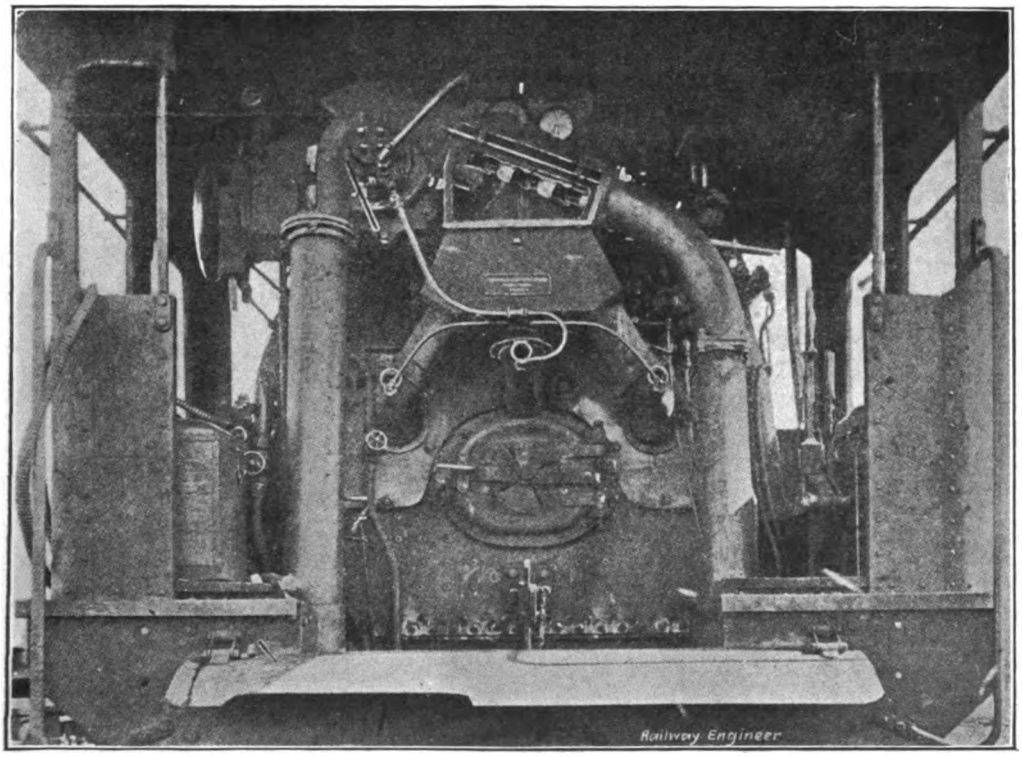
SOUTH AFRICAN LOCOMOTIVE FITTED WITH STREET MECHANICAL STOKERS.

THE publicity department of the South African Railways have recently issued a statement regarding the fitting of 2-6-6-2 mallet engines with street mechanical stokers. These engines are of the compound variety, with no superheater. The driving coupled wheels of the high and low pressure engines are of different sizes, in order to increase the hauling power on the heavy gradients.

The tender is of the ordinary type and is provided with a crusher of the moving bar type, worked by an engine placed behind the brake pillar. The fireman shovels the coal into the hopper of the crusher (shown in Figure 1) which reduces it to a uniform size. The coal falls from the crusher through a chute, into a receiver fitted behind the rear buffer beam of the engine, whence it is picked up by buckets working on a belt in the type shown in Fig. 2, and discharged into the central hopper on the fire box above the fire hole door. The buckets rise full on the left hand side and descend empty on the right hand side, and are worked by another smaller engine placed on the top of the fire box on the left hand side. There are three trays either to the middle or to the right or left coal-feeding pipes, whence it is blown into the fire box by the steam jets, the force of which is regulated by the cams, so as to deposit the coal just where it is required.



COAL CRUSHING HOPPER OF STREET MECHANICAL STOKER.



CAB OF 2-6-6-2 MALLET ENGINE FITTED WITH STREET MECHANICAL STOKER; SOUTH AFRICAN RAILWAY.

It appears to be a decidedly complicated machine, and while it is reported as giving better results so far as the locomotive is concerned, it should not be overlooked that the fireman has to attend to two auxiliary engines in addition to handling the same amount of coal. While the labor of shoveling the coal in the tender is avoided, every ounce of coal burned has to be transferred by hand into the crusher. In addition, the noise caused by the various operations is very great.

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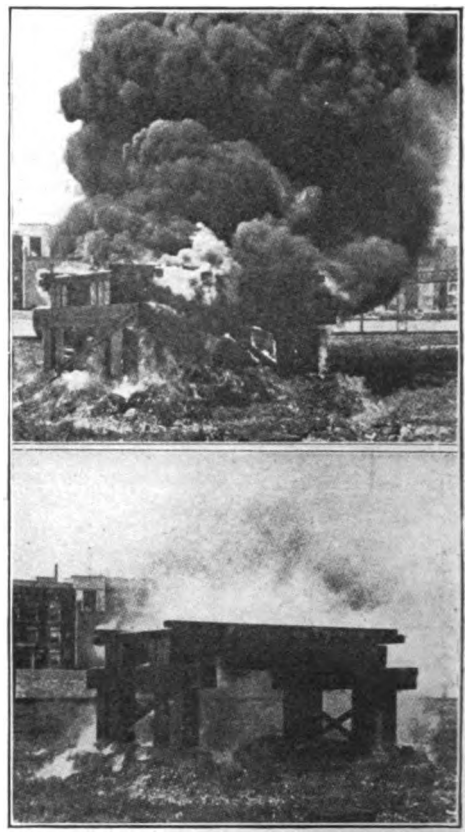
FIRE RESISTING PAINTS.

A NUMBER of interesting tests have recently been made on the Missouri River Bridge of the Illinois Central Railroad at Council Bluffs, Ia., in connection with a fire resisting paint. The floor of this bridge consists of a three-inch plank deck on which one coat of this paint, put on at a boiling temperature so that it would penetrate the wood, had been applied. After an interval of four weeks, it was tested by placing live coals at five different parts of the deck. These coals burned for an hour and ten minutes before going out, and an examination made immediately afterwards showed that the planking was only charred to a depth of 1⅜ inches and that the fire had not spread over the original areas covered. The following photograph illustrates the result of the test:

RESULT OF FIRE RESISTING PAINT TEST ON MISSOURI RIVER BRIDGE, SHOWING SLIGHT CHARRING OF WOOD.

On the following day, a test was also made of a one span structure specially erected for such purpose at Chicago. One coat of paint had been applied about three weeks previous to the test. Six large sacks of shavings, three bales of hay and one bale of straw, were scattered under the structure and it was fired. The following photographs illustrate the fierceness of the fire and the comparative lack of damage done to the structure. Although the stringers, ties and bents were a solid mass of flames shortly after the fire started, as soon as the paint began to come out of the wood, it formed a hard crust which soon extinguished them.



UPPER ILLUSTRATION SHOWS AN ATTEMPT TO BURN A SECTION OF TEST TRESTLE AT CHICAGO. LOWER PICTURE INDICATES EFFECT OF FIRE; SURFACE ONLY SLIGHTLY CHARRED.

Electrical

Norfolk & Western Railroad to Electrify.

THE Norfolk and Western Railroad has contracted with the Westinghouse Electric & Manufacturing Company to supply all the electrical apparatus required to electrify the Bluefield-Vivian section of its line some 85 miles in length.

The carrying out of this contract will give form to one of the most important projects of steam railroad electrification yet undertaken. The contract calls for the manufacture and delivery of twenty-six 130-ton electric locomotives of the single phase—two phase type, together with all required power house generating machinery and transmission apparatus.

Single phase alternating current of a frequency of 25 cycles and at 11,000 volts pressure will be supplied to the locomotives through an overhead suspended trolley wire and will be the identical type of the overhead system that has long been successfully used by the New York, New Haven and Hartford Railroad on its main line, by the Boston and Maine in the Hoosac Tunnel, by the Grand Trunk Railway in the Sarnia Tunnel and by the New York, Westchester and Boston Railway and for which installations the Westinghouse Electric and Manufacturing Company has furnished over 100 locomotives. The Norfolk and Western single phase-two phase locomotives, besides being very large and of enormous hauling capacity, will embody

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many unique features and requirements of design, which, it is expected, will result in their showing unprecedented flexibility and economy of operation.

The Bluefield-Vivian Section serves the celebrated Pocahontas coal region, one of the largest coal fields in the world. The tonnage of coal handled amounts to 65,000 tons per day, necessitating trains weighing as high as 3,250 tons. It is to facilitate the handling of this heavy traffic that the electrical operation has been decided upon.

There are a number of grades on this section, the maximum being two per cent, and at the present three Mallet locomotives (the most powerful type of steam locomotives built) are required per train. One locomotive is used at the head of the train and two for pushing.

Only two electric locomotives will be required for this service and the present speed will be doubled. The extent to which this quick train movement will enlarge the capacity of the railroad is quite apparent.

One of the present impediments to rapid operation of this section of the road is the extension of a 3,100 foot tunnel which is difficult to ventilate. This tunnel under electric operation will of course, owing to the absence of smoke and noxious gases offer no impediment to frequent train movement.

Since the Norfolk & Western locomotives are intended for handling what is known among railway men as "tonnage trains" they will be built for running speeds of approximately seven, fourteen and twenty-six miles per hour.

Power for the entire electrified section will be generated in a central power house located at Bluestone, West Virginia, with an installed capacity of 27,000 kilowatts in turbo generators, supplied by the Westinghouse Company.

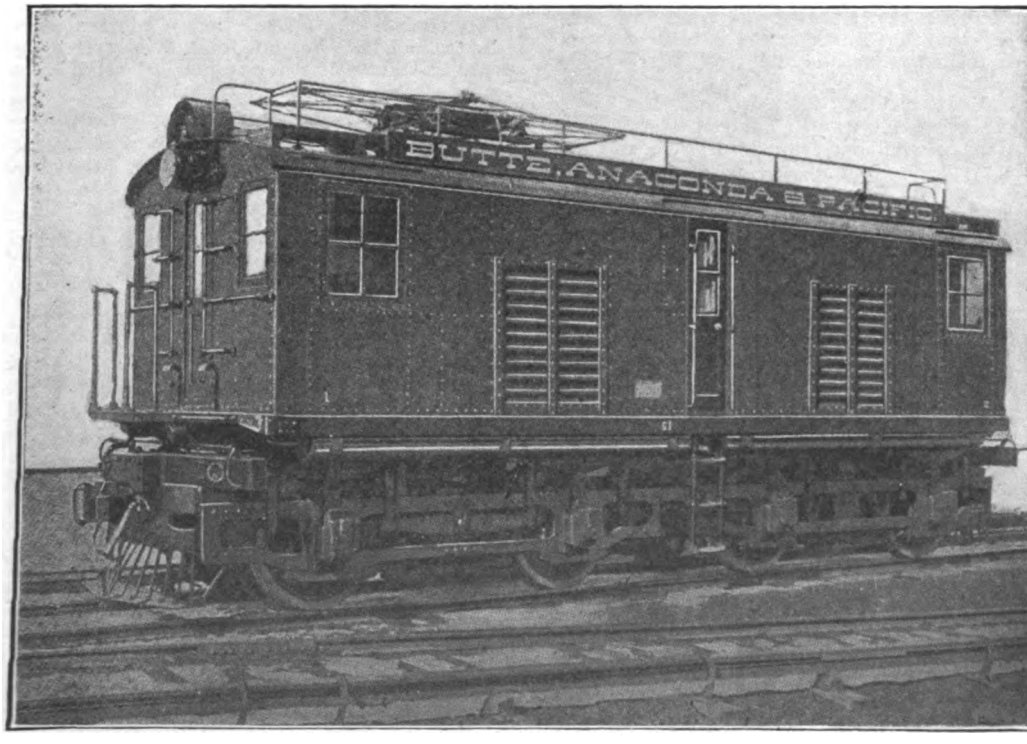
The traffic conditions of this section of the road are especially well adapted to electrical operation. It is in reality a separate engine division at present, and can be operated electrically without affecting the cost of engine service on other sections of the line.

ELECTRIFICATION OF THE BUTTE, ANACONDA AND PACIFIC RAILWAY.

ACCORDING to "Railway and Locomotive Engineering" the electrification of the Butte, Anaconda & Pacific Railway is one of the large installations of electrical equipment for steam railroad service and is of exceptional interest because it is the first in this country where direct current locomotives operating on as high a potential as 2,400 volts will be employed.

The adoption of the 2,400-volt direct current system for this railway was determined after a comprehensive study of local conditions and requirements. Service consists principally of hauling long trains of copper ore over heavy mountain grades. By the use of 2,400 volts unusual economies in initial expenditures were possible as the high voltage decreases the number of substations and amount of copper wire several times below that required for 600 volts.

The section of the road that has been equipped



BUTTE, ANACONDA AND PACIFIC RAILWAY TYPE OF ELECTRIC LOCOMOTIVE.

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lies between Butte and Anaconda, Mont. It comprises 30 miles of main line single track and numerous sidings, yards, and smelter tracks, aggregating a total of about 90 miles on a single track basis. The haulage of copper ore from the Butte mines to the smelters at Anaconda, together with all mine supplies, lumber, etc., moving in both directions, amount to practically 5,000,000 tons of freight per year. Complete freight trains weighing 3,400 tons are made up of fifty loaded steel ore cars and will be handled against a ruling grade of 0.3 per cent by two of the locomotives coupled together and operated as a unit. Only one locomotive will be used for making up trains in the yards.

The initial equipment consists of seventeen locomotives of the 0-4-4-0, fifteen for freight and two for passenger service. Two of these freight locomotives will haul the 3,400-ton trains at a maximum speed of 15 m. p. h. against the ruling grade and at 21 m. p. h. on level tangent track. The passenger locomotives are of the same design as the freight locomotives except they are geared for a maximum speed of 45 m. p. h. on level track. A schedule of eight passenger trains per day, four each way, is maintained, the average train being composed of a locomotive and three standard steam road passenger coaches. All the locomotive equipment, as well as the sub-station apparatus and overhead line material, was designed and built by the General Electric Company.

FREIGHT LOCOMOTIVE FOR BRITISH COLUMBIA ELECTRIC RAILWAY COMPANY, VANCOUVER, B. C.

FIVE fifty-ton electric locomotives have recently been built for the British Columbia Electric Railway Company, Vancouver, B. C. These locomotives are intended for freight service, and are similar to a number of sixty-ton locomotives recently constructed for the Southern Pacific Company. They are standard gauge, and are of the double track type with a central cab of the steeple type. This type of locomotive, because of its flexibility and simplicity of construction, is proving very successful in freight, switching and industrial service where severe operating conditions are frequently met. Each locomotive is equipped with four Westinghouse No. 308-D-3 box-frame commutating-pole 600-1200 volt railway motors, and Westinghouse type HB Unit Switch Control.

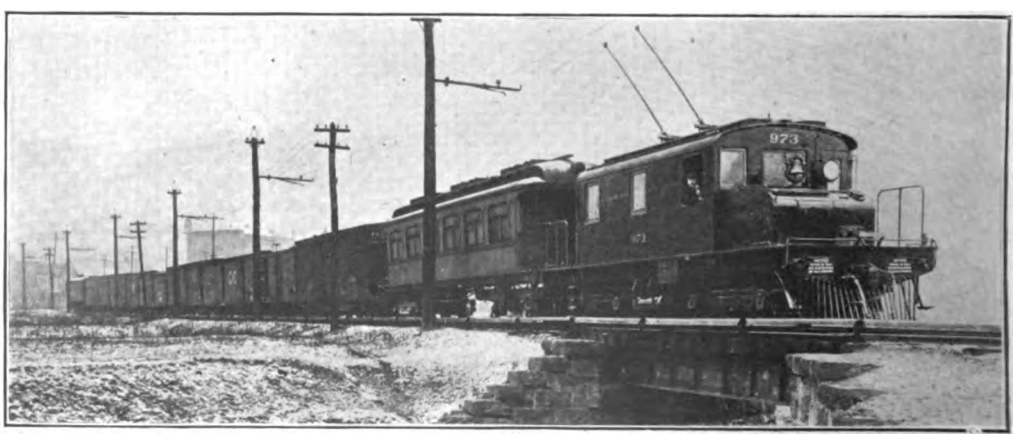
The 308-D-3 commutating-pole motors are adapted to subway, elevated and trunk-line railroad service. Since this motor is high powered and of the commutating-pole type, heavy loads can be handled without encountering motor troubles that are incident to such conditions. The No. 308-D-3 motor is well adapted where 1200-volt direct current operation is desired, and for such service, two motors are permanently connected in series. The box-frame construction offers decided advantages on account of its solid mechanical construction, effective protection, and the alignment of all parts. The commutating-pole feature of this motor makes it operate reliably and economically, for heavy overloads can be handled safely, and also a large range of over-voltage is permissible without serious consequences, which is incident to such heavy service in which this equipment operates.

The Westinghouse Unit Switch Control used is similar to the control used extensively by many electric railways and electrified steam roads. This control is especially adapted to locomotive service where currents of high value are to be handled and broken, for due to the inherent construction of the unit switch, there is positive action in the making and breaking of circuits carrying heavy currents, and due to the high pressure between contacts made possible by closing all switches by compressed air, no overheating or burning is experienced.

This control has a great many advantageous features, and last, but not least, it is extremely simple and accessible for inspection, reliable in operation, and economical to maintain.

Principal items of the control equipment consists of the following apparatus:

2 Master Controllers,
2 Switch Groups,
2 Reservers,
1 Series-Parallel Switch,
1 Line Switch,



BRITISH COLUMBIA ELECTRIC FREIGHT LOCOMOTIVE AND TRAIN.

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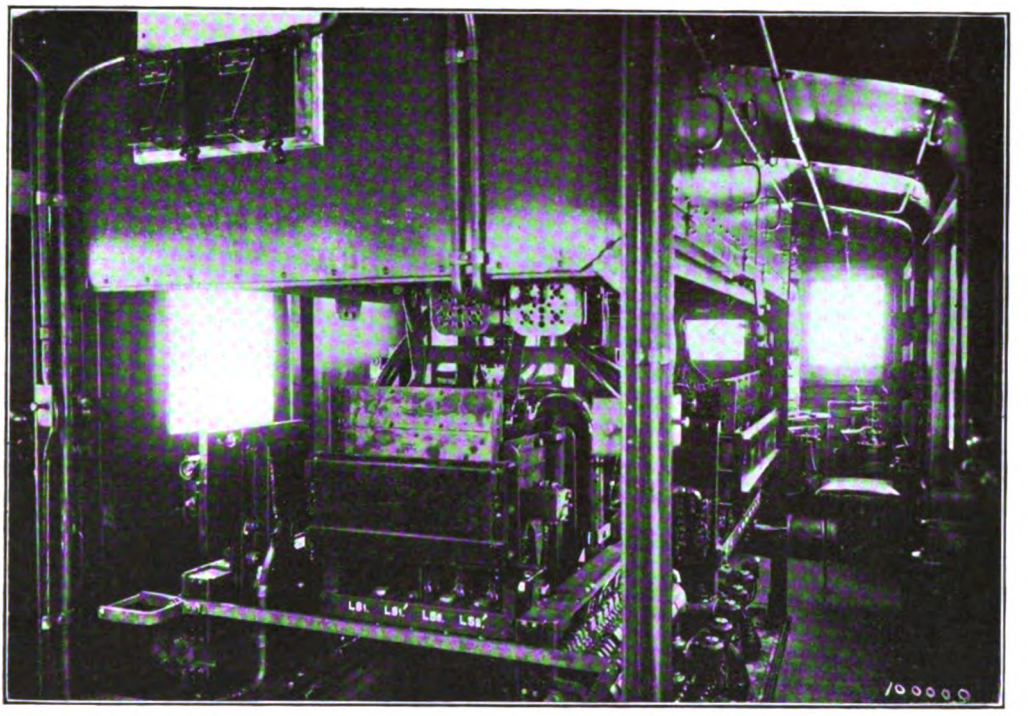

CAB INTERIOR BRITISH COLUMBIA ELECTRIC RAILWAY LOCOMOTIVE, SHOWING ENGINEERS OPERATING EQUIPMENT, SWITCH GROUP, LINE SWITCH WITH REVERSER, CONTROL SWITCHES, CHANGE OVER SWITCHES, AND CASE IN WHICH GRID RESISTORS ARE MOUNTED.

1 Control Resister,
2 Hand Operated Change-Over Switches.
2 Sets of Storage Batteries (10 Cells, each set giving 20 volts).

All of the above pieces of apparatus are enclosed in a wire cage supported by an angle iron framework in the center of the locomotive cab.

The grid resisters are mounted in the roof of the locomotive cab over the unit switch apparatus in a portion framed off and ventilated through the roof by two ventilators.

Each of the two master controllers have three running notches on 600 volts and two on 1220 volts.

An interesting item of this equipment is a series-parallel switch. The switch is controlled by a single-pole double throw knife switch at either end of the cab. On 1200 volts the connections are so arranged on the change-over switch that the series-parallel switch is in the 1200 volt position connecting two motors in series regardless of the position of the knife switch.

On 600 volts, the connections on the change-over switch are so altered on changing over to the 600-volt position that the motors of each part by means of the series-parallel switch may be thrown either two in series or two in parallel, where in the 1200 volt position the motors are two in series only. This is of particular advantage on 600 volts in accelerating heavy loads. The motors are first connected four in series until the train is started. The controller is then returned to the "off" position and the series parallel switch thrown to connect the motors of each pair in parallel. The master controller is then operated to connect in "series parallel" and finally in "parallel."

In changing over the 1200 volts to 600 volts, the resistances are paralleled, and also the dynamotor circuits are adjusted for 600 volts. This is all done by the two change-over switches.

THE ELECTRIFICATION OF THE NEW YORK, NEW HAVEN AND HARTFORD.

THE electrification of the New York, New Haven and Hartford Railroad has been developed to such an extent as to make it at the present time the most important and comprehensive trunk line electrification in the world. There are approximately 240 passenger trains operated by electricity each day and in addition to these, there is a considerable freight and switching service handled by electric locomotives.

As the following map indicates, the electrification of the system has now been extended from New York to New Haven, Conn. The initial electrification was made on the New York division extending from Woodlawn to Stamford, Conn., a distance of 21.4 miles. From Woodlawn to the Grand Central Station, New York City, a distance of twelve miles, the New Haven's trains operate over a section of road electrified with a 600-volt direct-current third-rail, belonging to the New York Central Lines. With the extension from Stamford to New Haven, there is in operation approximately 550 miles of electrified track. This also includes the Harlem River Division and the Oakpoint and Westchester freight yards. The service at present uses 100 Baldwin-Westinghouse 11,000-volt, 25-cycle,

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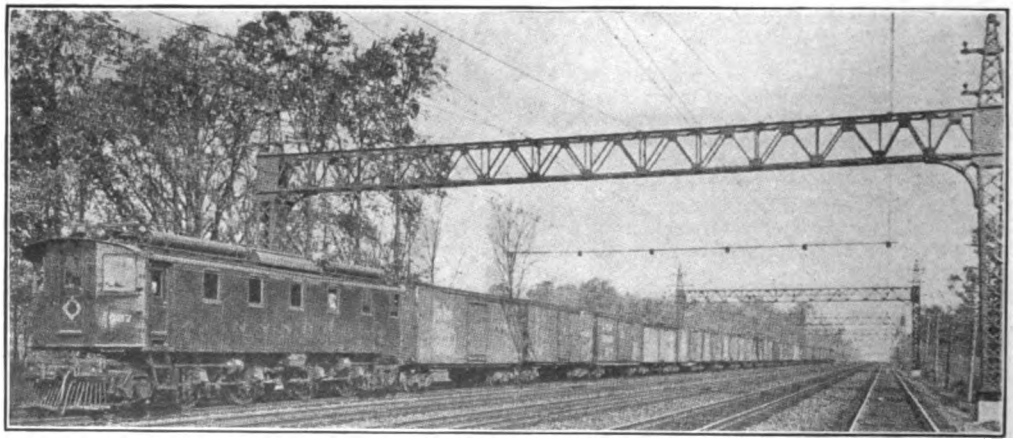
ELECTRIC SWITCHER LOCOMOTIVE AT WORK IN FREIGHT YARDS OF NEW HAVEN ROAD.

alternating-current locomotives. These locomotives operate from an alternating current trolley except, when some of them equipped for alternating-current-direct-current operation, are compelled to run over the twelve miles of New York Central Lines entering the Grand Central Station, New York. Then they operate from a 600-volt direct-current third-rail. Few persons appreciate the features of engineering which have made possible this operation, as the change from system to system (alternating-current to direct-current) is scarcely noticeable, except by the most experienced observer.

There are three general types of electric locomotives in operation on this property, namely, passenger, freight and switching.

The power house at Cos Cob, Conn., is approximately 33½ miles from New York and 40 miles from New Haven. It furnished power for not only the New Haven System, but also the New York, Westchester and Boston Railroad, an 11,000-volt, single-phase, alternating-current, highspeed suburban road approximately ninety miles long, and operating out of the Harlem River Station, New York.

Since this electrification it has been demonstrated that the ratio between the coal burned for operating passenger trains by electric rather than steam locomotives is one to two. In the case of switching engines, this rate is much greater, a figure of one to three being a conservative one.



A 110-TON SINGLE-PHASE ELECTRIC LOCOMOTIVE IN MAIN LINE FREIGHT SERVICE ON THE NEW HAVEN ROAD.

SUCCESSFUL TEST OF NEW LOCOMOTIVES ON NEW YORK CENTRAL.

THE "Railway Master Mechanic" contains an account of very exhaustive tests and trial runs recently made with an experimental electric ten-passenger locomotive of the most powerful type ever built, over the Harlem Division of the New York Central, with such entire satisfactory results, that the locomotive was immediately put into service, and a contract awarded for nine additional ones. These locomotives were described in the May issue of the "Railway World."

The electric locomotives in service previous to the introduction of the new engine weighed approximately 115 tons each. While the new locomotives are considerably lighter, weighing 100 tons, they are much more powerful, are provided with ample forced air ventilation and designed with a view to continuous high-speed service. All the 100-ton weight is carried on motor-driven axles, while the former locomotives have carried but 70 tons weight on the driving axles.

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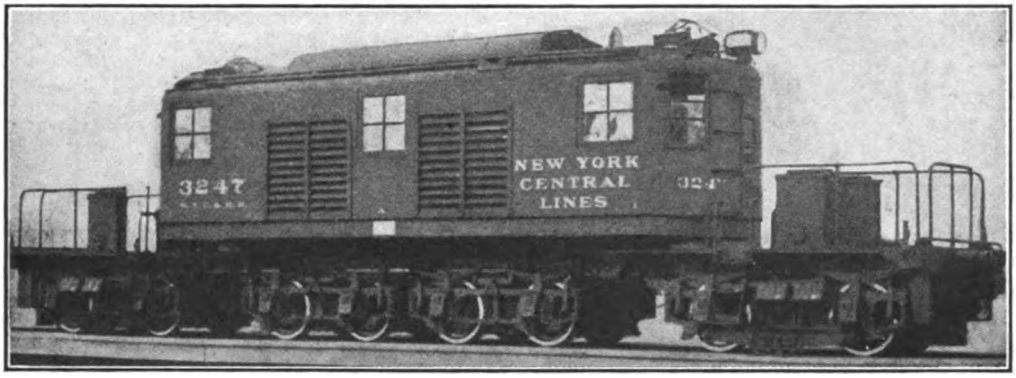
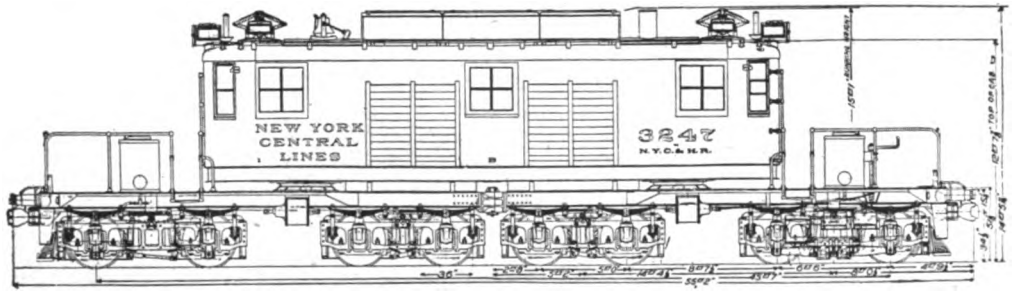


GENERAL VIEW OF NEW YORK CENTRAL HIGH SPEED LOCOMOTIVE, SHOWING ARRANGEMENT OF CAB AND TRUCKS.

The new electric engines will exert sufficient tractive effort to haul a train weighing 1,000 tons at sixty miles per hour. In regular service they have a capacity for developing 1,400 horse-power continuously and can develop as high as 5,000 horse-power for short periods.

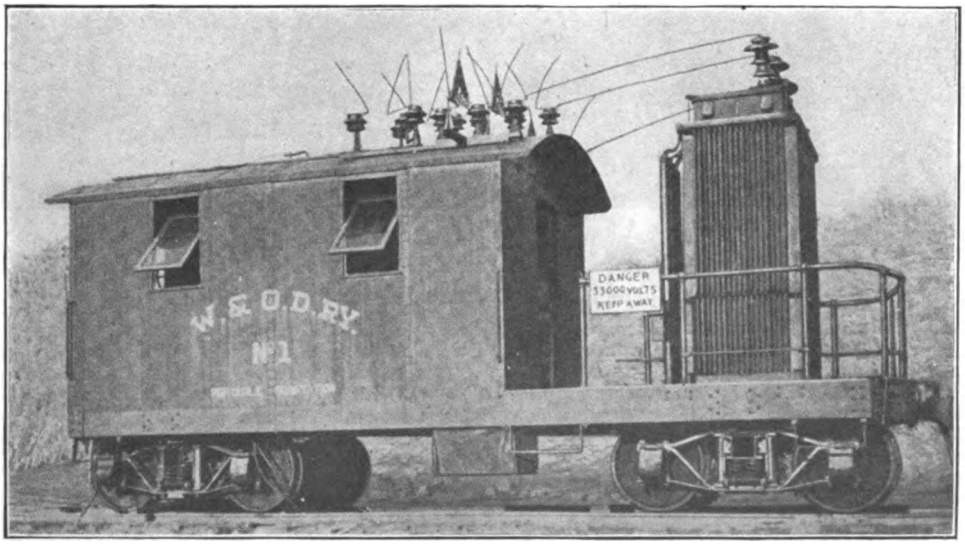
The accompanying illustration shows the general appearance of the new locomotives.



High-Speed Locomotive—Elevation Showing General Dimensions

PORTABLE SUB-STATIONS.

THE following illustration shows a portable sub-station such as is manufactured by the Westinghouse Electric and Manufacturing Company, of East Pittsburgh, Pa. These sub-stations are now in successful operation on a number of electric railways throughout the



A STANDARD WESTINGHOUSE PORTABLE SUBSTATION.

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country, and new uses are being found continually for them.

Such a station constitutes a spare equipment for practically any number of permanent sub-stations and renders unnecessary the installation of spare equipment in each. It can be used to increase the capacity of a permanent sub-station when the load is unusually heavy and can also be used for determining the most advantageous point at which to locate a permanent sub-station

It can also, during repair, temporarily take the place of a permanent sub-station, and can be used, inverted, to test out cable and in transmitting energy around the break when a high tension line is being repaired.

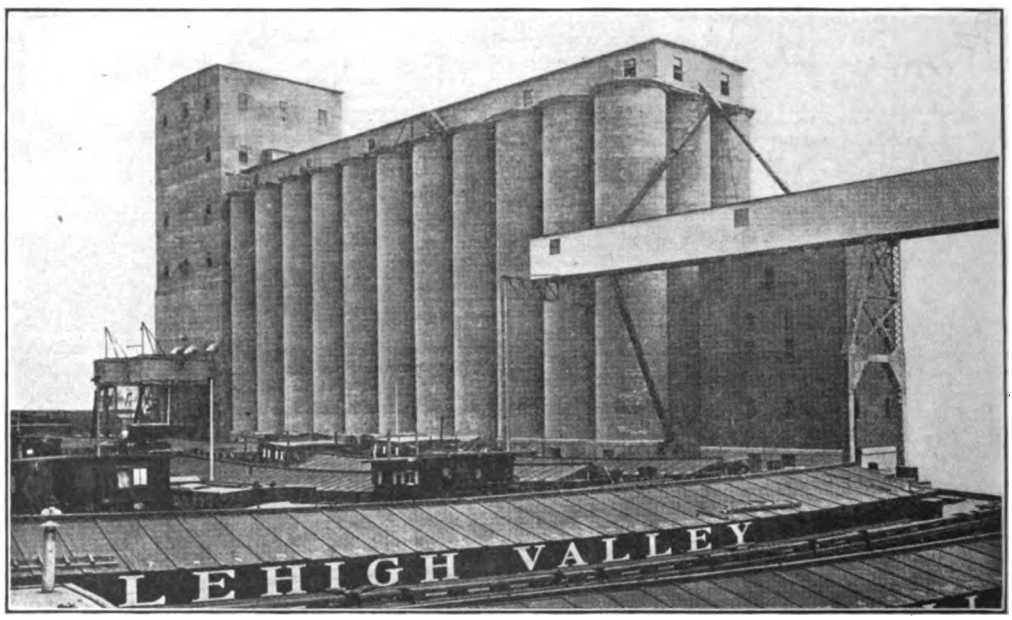
Terminal Improvements

NEW STORAGE ELEVATOR OF THE LEHIGH VALLEY.

THE Lehigh Valley Railroad Storage Company has completed its new 450,000 bushel storage elevator at the National Docks, Jersey City. The storage house is constructed of reinforced concrete; the operating house has a steel skeleton with concrete covering; concrete floors extend throughout the whole structure. A separate fireproof building of brick, steel and concrete, connecting with the main structure, with all the necessary conveyors, is provided as a dryer house. All the buildings comprising this new plant rest on piling and concrete, with a concrete bulkhead facing the dock. In the storage house there are thirty-three 10,000 bushel tanks and twenty intermediate tanks of 4,000 bushels capacity each.

The operating house can take care of 36,000 bushels of grain and with the modern elevating machinery installed operated by individual electric drives, the plant can handle eleven cars of grain per hour. Power shovels unload cars from two tracks into unloading pits from which the grain is conveyed by belts throughout the house and ample spouts permit the loading of grain direct or from storage to cars or boats.

Automatic scales have been placed at convenient points within the house, and electric cars and boat hauls have been installed without.



GENERAL VIEW OF THE LEHIGH VALLEY'S NEW STORAGE ELEVATOR AT JERSEY CITY.

CANADIAN PACIFIC STATION AND HOTEL AT WINNIPEG.

THE "Canadian Railway and Marine World" of August, contains a description of the Canadian Pacific Railroad's station and Royal Alexandra Hotel at Winnipeg, and presents the following illustration as indicating their general appearance when completed.

These alterations and extensions will largely change the appearance of the existing buildings. The improvements being made will be an addition to the hotel which will add 184 rooms, not 474 as stated in daily press reports, to its accommodation; a new six story building will replace the present baggage room and Dominion Express Co.'s offices; there will be considerable extensions to the present station and waiting rooms, and in the train shed the tracks will be raised six feet, and the Main Street subway is to be raised to a corresponding height and widened to permit of the installation of two additional tracks.

The internal improvements to the hotel will give two additional elevators for baggage; and additional elevators for guests; the addition of a ball-room, 100 by 40 feet; a banquet room of

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CANADIAN PACIFIC RAILWAY STATION AND ROYAL ALEXANDRA HOTEL, WINNIPEG, AS THEY WILL APPEAR WHEN EXTENSIONS CONTRACTED FOR ARE COMPLETE.

similar dimensions, and ten private dining rooms.

The station accommodation will be rearranged so as to provide special waiting rooms for immigrants; a complete rearrangement of the space allotted for the handling and checking of baggage, and the construction of a subway with connecting stairways between the hotel and the station.

THE MOUNT ROYAL TUNNEL OF THE CANADIAN NORTHERN RAILWAY.

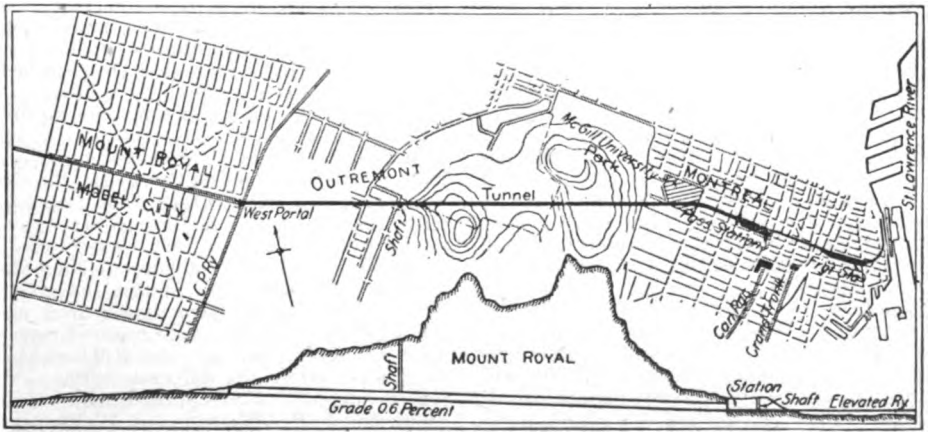
THE "Canadian Railway and Marine World" contains an interesting article by S. P. Brown, chief engineer of the Canadian Northern, Montreal Tunnel and Terminal Company, regarding the new Mount Royal Tunnel being built to connect Mount Royal and Montreal.

Discussing the general features of the project, Mr. Brown says:

"The natural location of the business centre of Montreal, between Mount Royal and the river, made the problem of entry at first appear complicated. To enter from either end of this strip meant a detour that was undesirable, and might have resulted in two separate stations for the eastbound and westbound traffic. A study of the topography and economic distribution of the city and island showed that a tunnel was the logical, as well as the economical, method of entry. It was found that the railways coming from the west could be brought from a convenient site for yards, shops, etc., near the Back River, to a junction point with the Quebec lines near the present Jacques Cartier Union Railway (G.T.R.) and thence at a very flat grade to a tunnel portal at its crossing with the C.P.R. belt line, about a mile from the Outremont yard. Thence the line will pass through a twin tunnel 3.25 miles long, down a 0.6 per cent grade to a passenger terminal in the very centre of Montreal.

"From the main passenger terminal the tracks may be extended across to the lower town on a viaduct at a level grade to connect with a viaduct along the harbor front, proposed by the Harbor Commissioners of Montreal, and a possible bridge across the St. Lawrence River. Such an extension would also include in the commercial part of the town an elaborate freight distributing depot, a department to which the C.N.R. is giving most serious thought at present. In connection with this freight department, large sorting and transfer yards are being developed back of the mountain and east of the city, where most of its shunting and mechanical part of the freight transference will be accomplished.

"The city of Mount Royal, or as it is locally termed, the "model city," is laid out on a rectangular plan, with four diagonal boulevards radiating from the railway station, which forms the centre of the town site. There is also a meandering boulevard connecting a series of parks and playgrounds distributed over the city, in general midway between the central park and the station site and the city limits. The land, consisting of a gently sloping plane, makes the situation ideal for drainage and sanitation. The



LOCATION OF THE MOUNT ROYAL TUNNEL ON THE CANADIAN PACIFIC BETWEEN MONTREAL AND MOUNT ROYAL.

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streets will be paved principally with asphalt and macadam, the stone for which will be taken from the tunnel excavation. Street car service and lighting have already been arranged for with local companies in Montreal, which assures excellent service, and through trolley connections with Outremont, Westmount and Montreal proper are contemplated. The lots are being sold under very rigid building restrictions, as it is desired to produce a quarter of town for the better class of people who are rapidly being crowded out of the more desirable parts of Montreal, as well as for the city's rapidly growing population. A short multiple unit train service through the tunnel will bring the Mount Royal station within a very few minutes of the main passenger terminal in the city proper and trolley cars will tie the street car lines of the 'model city' with those of Outremont and Montreal. A small freight yard near the west portal of the tunnel will serve for the delivery of local freight and express and for the manipulation of multiple unit trains during the rush hours. The entire terminal scheme is to be utilitarian from the Back River to the waterfront. The idea is to produce structures and developments that will be attractive to the eye and so designed and disposed as to be self-supporting in themselves without the assistance of the ordinary railroad traffic."

Interstate Commerce Commission

Abstract of Express Rate Decision.

THE recent decision by the Interstate Commerce Commission reducing express rates throughout the country, and its effect upon the interests involved, are discussed in anotner section of this issue. The following is the official abstract of the Commission's report:

The report and order of the Interstate Commerce Commission in the Express Investigation (written by Commissioner Marble) lays the following requirements upon the express companies:

The adoption and observance for two years of a schedule of rates applying between all points in the United States. (This is the schedule which was submitted to the carriers by the Commission in the report of Commissioner Lane on June 8, 1912.)

The adoption of the block system of stating rates, which was set forth in the report of June 8, 1912.

The establishment of a uniform classification, which is contained in an appendix to the order.

The publication of a joint directory of express stations, fixing the location of each such station by block number.

The publication jointly of the pick-up and delivery limits at each station.

The adoption of revised rules and regulations.

The adoption of a new form of express receipt.

The requirement of the order of June 8, 1912, that a label shall be attached to each parcel, is modified to the extent that, in case of shipments or perishable property, consisting of two or more packages, the label need be attached to only one package.

The order includes five appendices consisting of classification, directory, and rate tables, and covering more than 1,000 pages of matter.

Under the present method of compiling tariffs some 900,000,000 separate rates are published by the express companies. Under the block system of statement prescribed by the Commission this number is reduced to less than 650,000 rates. At the argument it was stated by representatives of the carriers that the block system is practicable and satisfactory. It is considered by the Commission that its simplicity and intelligibility will afford the means for satisfactory publication of express rates.

A table attached with the decision shows comparatively present express rates, proposed express rates and present parcel post rates between various selected points. Representative cities have been selected, and rates between each such city and 75 other points have been shown. The order provides that as between any two points rates shall be the same in both directions, and shall be the same whether one or more carriers participate in the haul. That is to say, the rates prescribed are joint rates in all cases where the route between any two points is over the lines of more express carriers than one.

The most important change in rates made by the Commission's order is by way of modification of the present graduated scale of parcel rates. The 100-pound rates for short distances have either been but slightly reduced or have been left unchanged. For long distances the 100-pound rates have been somewhat reduced. By the changes in the graduated scale, however, the rates for packages weighing 50 pounds or less have been practically all reduced. A comparison of the rates prescribed with the parcel post rates now in effect discloses that the prescribed express rates for packages over 4 pounds when carried for distances of more than 200 miles and less than 3,000 miles are generally lower than the parcel post rates. For distances of more than 3,000 miles the parcel post rates and the prescribed express rates are practically the same.

The report is largely devoted to a discussion of the showing made by the express companies in opposition to the proposed rates. After the submission of these rates to the express companies by the report of June 8, 1912, and supplements thereto, the express companies made an estimate of the reductions in revenue claimed to be caused by the Commission's rates. At a hearing held in Washington on October 9, 1912, the carriers estimated these reductions in revenue at as much as 30 per cent. It was claimed that these estimates were based upon the application of the Commission's proposed rates to the actual business of various selected days. At the request of the express carriers further time was given for the preparation of these estimates. Thereafter the express companies made further showings of estimated losses, these being based upon an application of the Commission's proposed rates to the business of October 23, 1912. These estimates of losses vary for the different carriers. According to one table filed by the Adams, American, Southern, United States, and Wells-Fargo Express companies, however, the proposed rates would have caused to these companies a reduction of revenue on all interstate traffic equal to

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15.33 per cent of the gross revenue from all sources including revenue from the transportation of money and valuables.

The report finds, however, that the business of October 23, the day selected by the carriers for this showing, was abnormal in character, the receipts of the companies being a little more than 12 per cent greater on that day than the average daily revenue for the preceding fiscal year. Further examination showed that the average weight of parcels carried on that day was practically the same as the average weight of parcels for selected periods theretofore reported to the Commission. The average charge per package, however, realized by the carriers on that day was considerably in excess of the average charge per package received by the carriers on other selected days previously reported to the Commission.

It was also found that the estimated revenue per piece of express matter resulting from the application of the Commission's proposed rates to the business of October 23, 1912, was for six of the nine respondents in excess of the average receipts per package for the same respondents from their present rates for certain selected days in the past theretofore reported to the Commission. The conclusion is that the business of October 23 contained either an excess of long-distance business or an excess of merchandise business, which resulted in increasing the average returns to the carriers for that day, and which also enabled a showing of estimated losses to be made which would not have been possible had the day's business been normal. The Commission therefore adheres to the conclusion that the rates proposed by it are just and reasonable, and directs that they be established on or before October 15, 1913.

The basis of the classification prescribed is that all articles of merchandise of ordinary value are to be carried at first class or ordinary merchandise rates. All articles of food and drink (with a few exceptions) are second class and are to be carried at 75 per cent of the first class rate. Articles of extraordinary value must be so declared at time of shipment. The order provides for special rates based upon such extraordinary value.

The form of express receipt shown by the order is the result of conferences between the Commission's representatives and representatives of the express companies. It more carefully guards the rights of shippers than does the form of receipt now employed by the express companies. It provides that the liability of the carrier shall be limited to a maximum of $50 on each shipment weighing less than 100 pounds and a maximum of 50 cents per pound on shipments weighing more than 100 pounds, unless a greater value is declared at the time of shipment. All rates are based on carrier's risk to the limit of the stated value, all rates based upon owner's risk being eliminated.

Under the present rules where two or more packages are shipped by one consignor to one consignee the rates charged are on the basis of the aggregate weight of both packages estimated at 20 pounds each when weighing less than 20 pounds, making the minimum charge for two packages in one shipment that applicable upon a weight not less than 40 pounds. It is directed by the report that this rule be so amended that when the average weight of all packages in a combined shipment shall be ten pounds or more the charge shall be upon the aggregate weight. If the aggregate weight is less than 10 pounds for each package included in the shipment, the charge is to be made upon an average weight of 10 pounds per package.

The rates prescribed for newspapers and periodicals, as well as bread and similar articles, are substantially the same in amount as the present rates.

A permanent committee has been appointed to revise the routes of express carriers so as to eliminate the circuitous routes which are now a cause of considerable complaint on the part of shippers. This committee is composed of representatives of the express companies and of the Commission. The report says:

"The long delay in the issuance of the Commission's order as to the rates requires explanation. It has arisen from the extraordinary care exercised by the Commission to make its order entirely fair to the express carriers. To this end prolonged investigation of the actual business of the various respondents was made, approximately one year being consumed in examining the books and records of the respondents. The results of this painstaking investigation are to be found in the working papers of the Commission, and in the various tables and exhibits prepared therefrom, all of which were placed in the record. Thereafter printed inquiries were addressed to the respondents requiring voluminous and exhaustive statements from them supplementary to the information secured by the examination of their books and records. These responses were then digested in the office of the Commission, the extensive statement of facts contained in the appendices to the report of June 8, 1912, being in large part obtained therefrom. Also the existing tariffs of all the respondents were examined and subjected to minute and painstaking analysis and comparison one with the other as well as with the tariffs of rail carriers for transportation of property over the same routes.

"Throughout the time of this examination, moreover, informal complaints, some thousands in number, were received from shippers to the effect that specified rates and practices of the respondents were unjust and unreasonable. A volume of these informal complaints was incorporated in the record and brought to the attention of the respondents. Particular attention was given to the examination of each such complaint with a view to further familiarizing the Commission with the practical difficulties experienced by shippers under the present rates and practices of the express carriers."

In addition to all the above, prolonged informal conferences between the Commission and the executive heads of the respondents, including traffic officers and counsel, were held in the endeavor to arrive at a common understanding of the various problems involved. At these conferences proposed bases for rates were informally laid before the Commission by the respondents, and an effort was made to arrive at a common understanding in this regard also. These conferences developed, however, that no common ground could be found, owing to the impossibility of acceptance by the Commission of the percentage contracts between the express companies and the rail carriers as making a legal or moral necessity for higher rates than could be justified otherwise. The offers of the express companies

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indicated the possibility of agreement upon a 100-pound scale substantially lower than that here prescribed. The chief opposition of the respondents, then and now, is to any substantial modification of the scale of rates for the transportation of packages less in weight than 100 pounds. While such packages must have rates based upon weight, yet as they move as separate shipments with individual pick-up and delivery service each must pay for such service as an individual shipment. The amount of such service varies but slightly with the weight of the package and not at all with the length of its rail journey. It is entirely performed by the express carrier, yet the demand is that shippers shall be compelled to pay upon such packages rates sufficiently high to yield to the express carrier, out of a division ranging from 35 per cent to 60 per cent, an amount sufficient to compensate it. Every addition to the rates paid by the shipper for such service as distinguished from the line haul is cut in two by the contracts and must be doubled if the express carrier is to be compensated.

"Likewise, in the case of rates for long distances, the service performed by the rail carrier, especially on shipments of large weight, is relatively much greater than that performed by the express company. As to these rates, the contention is that full compensation for the rail carrier must be found in half or less than half thereof. Any allowance in such rates for the benefit of the rail carrier is cut in two by the contracts.

"The Commission has repeatedly decided that these contracts can not be accepted as a basis for the making of rates. If confirmation of the correctness of this view were needed, it is found in the figures hereinafter discussed, which show that since 1909 the increased traffic of these respondents has been insufficient to meet the increases in the demands of the rail carriers.

"The bulk of the express business is small packages carried for comparatively short distances. Under the percentage agreements no fair allowance for pick-up and delivery service on such packages is possible, because every such allowance is at once divided with the rail carriers.

"The inevitable result of the constantly increasing proportion of express revenues paid to the rail carriers must be to constantly increase the cost of service to the shipper if the Commission is to yield to the demand that these contracts be accepted as binding upon it. If, as the answers of these respondents claim, their net operating revenues are now insufficient to provide adequate return upon the capital employed, then, if this Commission is to regard these contract payments as a legitimate charge upon the traffic, the logical result must be to increase and not to decrease express rates. As the contracts are mere expressions of the wills of the parties thereto, they could always be so formed as to justify any rate that the beneficiaries thereof might consider possible of collection. It was therefore necessary to end the informal conferences with the executive heads of the express companies without agreement upon any basis for the rates upon small packages for short distances as well as for the rates upon large packages for long distances."

As a result of all the foregoing efforts, the Commission returned to its ordinary procedure in rate cases and itself formulated and published the rates embodied in its report of June 8, 1912. It did, however, in this regard adopt the unprecedented method of exposing the rates prepared by it to the analysis and criticism of the respondents before the issuance of its final order. The order of June 8 in this regard was as follows:

"'That said respondents be, and they are hereby, notified and required to show cause before this Commission, on or before the 9th day of October, 1912, why the following rates set forth as proposed rates should not be put into effect between the points herein designated, as just, reasonable, and nondiscriminatory rates, and in the manner and form for the stating of said rates proposed in the accompanying report and appendix.'

"By this method it was hoped that every valid objection to the rates made by the Commission might be developed, and that all changes necessary to make them entirely just might be made in advance of their imposition."

While no conclusion is based upon the fact that a considerable amount of business is being carried free by the express companies, the fact is noted. It appears that something more than $2,000,000 worth of transportation is given yearly to the holders of franks without charge.

With regard to parcel post and its effect upon the express companies the report says:

"A considerable portion of respondents' argument is to the effect that the loss of business to the parcel post will so far reduce their earnings as to render all previous investigations valueless. This is equivalent to saying that inasmuch as shippers have been given the convenience and economy of the parcel post the express carriers must, on that account, be allowed to charge rates higher than would otherwise be reasonable. That is to say, the Commission is called upon to take from the shippers of the country all the benefit that they receive from the parcel post and give it to the respondents in the form of higher rates upon the remaining express business.

"Whenever it has been suggested in the argument, however, that fairer rates and juster methods would bring to the express companies a volume of business which is now moving by freight the reply has been that any increase of express business would be disadvantageous because it would retard the operation of passenger trains. According to this argument the situation is, therefore, that losses of business must be followed by increased rates upon the remaining business, but that any increase or replacement of business is to be prevented

"With regard to the small package business of the parcel post it should be noted, however, that it will still be carried upon the railroads of the country. So far as the rail carriers are concerned, it is of no consequence to them whether they furnish rail transportation for the express respondents herein or for the Postoffice Department. The express companies, moreover, will not experience a gross loss of their earnings upon these small parcels, but only of the net difference between their earnings heretofore and the cost to them of furnishing terminal service upon these parcels. The Commission's conclusion is that any losses of business for the future may easily be replaced by new business if the express carriers are so inclined, and that the establishment of the parcel post is not a justification for any higher scale of rates than the one here shown to be reasonable.

"The Commission's order is for two years only. That period will give abundant opportunity for a test of these rates under varying conditions

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amounting to a normal average. In no other way can the absolutely proper rate basis for respondents be finally determined. Respondents are also at liberty at any time to bring forward new facts as a basis for a petition for modification of this or any other order."

Ruling on Shippers' Informal Complaints.

THE Commission has established a ruling to the effect that shippers in the future who file informal complaints will be compelled to prosecute their claims on the Commission's formal docket, and those who abandon such claims will not be allowed until after five years have elapsed, to revive the complaint.

Mississippi River Case Decided Against Railroads.

ASIDE from the express rate decision, the ruling handed down by the Commission covering what has been commonly known as the Mississippi River Rate Case, was the most important of the month. The Commission held to be excessive the present rates between the upper Mississippi River crossings in the State of Iowa and points east of the Indiana-Illinois State line. These rates were held not only to be excessive in themselves but also discriminatory when compared with rates to the lower crossings. The present first class rate of 97 cents from New York City to the Upper Crossings was ordered to be reduced to 90 cents by November 1st and the other classes and rates from other Eastern points reduced accordingly.

In what is known as the interior Iowa cities case the Commission condemned the rate adjustment of the New York Central and other railroads upon which through charges are based on class traffic between points in the interior of Iowa and points in the territory east of the Indiana-Illinois State line. The through rates in this case were held to be unreasonable because of the excessive and discriminatory proportional rates applied between the Mississippi River and the interior Iowa points. The roads were asked to submit revised freight tariffs drafted in accordance with the decision.

Rates to interior Iowa cities from Chicago also were held to be unreasonable in the case brought upon the complaint of the Cedar Rapids Commercial Club and others. In this instance the class rates between Chicago and points on the Missouri River are adjusted on an 80-cent scale and between Chicago and points on the Mississippi River in Iowa on scales of from 37.5 to 41.7 cents. The Commission held that the rates between the interior cities and Chicago are unreasonable and discriminatory in comparison with the rates to the river towns. The Rock Island and other roads were requested to submit to the Commission a revised basis of these rates grading the 80-cent Missouri River scale back across the State.

In the case of the Colorado Manufacturers' Association and others against the Atchison and other railroads the Commission held that the rates from Chicago and the Mississippi River to Colorado are not unreasonable, but that the rates eastbound between the same points are unreasonable and must not exceed the westbound rates. Furthermore, the Commission held that the class rates between Colorado common points and the Missouri River are excessive. Lower rates were prescribed to take effect September 15th.

Payment to Manufacturers' Railway of St. Louis Held Illegal.

THE Commission has issued a supplemental decision in the case of the Manufacturers' Railway Company of St. Louis, holding the present payments to the Manufacturers' Railway by the trunk lines serving St. Louis under their absorption tariffs are unlawful and should be cancelled. The Commission reversed its previous finding that the trunk lines serving St. Louis are subjecting its shippers to undue prejudice because they absorb the charges of the Terminal Railroad Association in order to make delivery on the rails of that association at the St. Louis rate, while refusing contemporaneously also to absorb the rate of the Manufacturers' Railway, an independent terminal carrier.

The Commission noted "there is a well defined distinction between absorptions, allowances and divisions of joint rates, which, once recognized in the establishment of the joint rate, will render immaterial the question whether, in this case, the stock of the Manufacturers' Railway and of the Anheuser-Busch Brewing Association, its principal industry, is in common or independent ownership, as the latter will then necessarily be treated in all respects upon the same basis as will the shippers located on or served by the Manufacturers' Railway, who have no interest in that railway or in the brewing association."

The Commission now asserts that through routes and joint rates should be prescribed between the trunk lines and the Manufacturers' Railway, under which the trunk lines will retain their full rate to St. Louis, the division of the joint rate accruing to the Manufacturers' Railway to be paid to it by its shippers, including the Anheuser-Busch Brewing Association, instead of by the trunk lines.

Ruling on Mexican Freight.

THE Commission has recognized the serious conditions which exist in Mexico on account of the revolution, by issuing the following special conference ruling with reference to freight consigned to that country:

"As to shipments from points in the United States to points in Mexico which are held at the border by reason of the carriers being unable to transport them to destination on account of revolutionary conditions in Mexico, the carriers will be permitted to file with the Commission a proper application for authority to establish on one day's notice tariffs naming the conditions and rates under which they will return or otherwise dispose of the property which has been billed to points in Mexico and which they have been unable to deliver because of the revolutionary conditions in Mexico."

This ruling was adopted at the conference held the latter part of July, and it is understood that the serious conditions in Mexico was brought to the attention of the Commission not only by the railroads themselves but also by administration officers of the Government. In this connection, also, the Commission rescinded its ruling relative to granting passes to officers

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and employes of railroads in Mexico, and substituted the following:

"Free interstate transportation may lawfully be issued to officials of any railroad in an adjacent foreign country which has filed joint tariffs and concurrences in connection with interstate carriers in the United States, without reservation as to the jurisdiction of this Commission."

Report on Railroad Track Scales.

THE Commission has made public its report on its recent investigation of railway track scales. It is asserted that a majority of such scales now in use in the United States should be rebuilt in order to obtain reasonably accurate results. The Commission says that as a result of the investigation representatives of shippers have this matter under consideration with the railroads and it is expected that satisfactory rules will be formulated.

"If not," says the Commission, "the matter will be further proceeded with by the Commission and any particular rule can be made the foundation of complaint."

The commissioner says: "This investigation was undertaken in consequence of numerous complaints received from all sections that the weights under which freight charges were assessed were grossly inaccurate and that great difficulty was experienced in correcting these inaccuracies."

It is added that "the principal complaint was against carload weights and the weighing of carloads by track scales has been the principal investigated, although some attention has been incidentally given to platform scales."

The Commission says that as a result of the investigation some reforms have been made by certain carriers and that the Pennsylvania Railroad has given some attention to the correct sealing of cars.

The Commission says that in its opinion some Federal authority, perhaps the Commission, should be given authority to fix the point at which track scales shall be installed; to prescribe the standard to such scales and their installation; to test or supervise the testing of such scales; and to supervise the operation.

The report says in part:

"The results of this investigation have abundantly justified the proceeding. The first hearing made plain the deficiencies of the carriers in this respect and immediate steps were taken for the betterment of weighing conditions which have resulted in most marked improvement.

"Looking at conditions as they existed when the order instituting this investigation was made on January 15, 1912, this can be affirmed with some confidence:

"Three-fourths of all the track scales in use in the United States were of the defective design or improperly installed. Less than one-fourth were properly inspected. Not more than ten per cent were accurately tested and a majority were not in any proper sense tested at all. The methods of weighing were heedless and unsatisfactory in many cases. The stenciled car weights upon 80 per cent of all cars were erroneous. While checks weighing at certain points where better facilities were available and superior operating conditions prevailed, tended to reveal many of the original erroneous weights, these changes in the original weights were a source of constant irritation and inconvenience to shippers.

"The carriers insist that these errors were as often in favor of, as against the shipper and that on the whole they would offset one another. There is not and there can be no intelligent opinion upon this point, nor is this perhaps material.

"The freight rate is in most cases assessed by the hundred pounds. It amounts to the same thing whether the rate be high or the weight be excessive. Inaccuracies in weighing result in the imposition of unreasonable charges and in discriminations between shippers just as really as do differences in the freight rates itself.

"Nor does it meet the situation to say that the railroads have given to one shipper by assessing charges upon too low a weight, what it has taken from another by enforcing an excessive weight."

Railroad Revenues.

THE Commission has issued a preliminary analysis of the revenues and expenses of railroads for the fiscal year recently ended. The analysis shows that the roads had net operating revenues of $915,277,797. The revenue per mile was $13,984, against $12,807 the previous year and the expense per mile averaged $9,677, against $8,839 the year before. This indicates an average increase of $339 per mile in the net revenues of the roads. The analysis deals with railroads with $1,000,000 or over of yearly revenues.

Cause of Railway Accidents.

ACCORDING to the latest statement of the Commission on railway accidents and their causes, defective railway and defective equipment, jointly, were responsible for more than 70 per cent of all the derailments on steam railroads of the United States during the quarter ended March 31st, last. Of derailments due to defective roadway, more than 20 per cent were caused by broken rails.

During the quarter 158 persons were killed and 3,628 were injured in train accidents, these figures showing a decrease of 109 killed and 1,157 injured, as compared with those for the corresponding period of 1912.

In other than train accidents, including accidents to employes while at work, to passengers getting on or off cars, and to trespassers, 2,086 persons were killed and 17,194 injured, showing a decrease of 30 killed and an increase of 1,480 injured.

By industrial accidents, not involved in train operation, but occurring to railway employes on railway premises, 97 were killed and 26,812 injured, a decrease of one killed and an increase of 3,836 injured.

The total shows a decrease of 140 killed and an increase of 4,159 injured, as compared with the corresponding period in 1912.

Another Expense Item to be Reported.

THE Commission has issued instructions to the railroads that a new item of expense, due to the work of taking physical valuation of the roads, should be estimated in their

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regular reports to the Commission. The order states that this account should include such expenses as the salaries of clerks specially employed for the work, traveling and other expenses, etc. The new rule went into effect July 1, 1913.

The Abolishment of Free Delivery at Baltimore and Washington Upheld.

THE Commission has refused to suspend the tariffs of the Pennsylvania and Baltimore and Ohio Railroads, abolishing free city delivery at the cities of Washington and Baltimore, which has been in operation for a number of years. The refusal of the Commission to suspend the tariffs is tantamount to the refusal of a court to grant an injunction and the tariffs went into effect on September 1st. The notice refusing the petition for suspension, reads as follows:

"Referring to joint petition of the Chamber of Commerce and Retail Merchants' Association of Washington, D. C., you are advised that the Commission declines to suspend the operation of the Baltimore and Ohio Railroad and Pennsylvania Railroad tariff schedules, which, effective September 1, 1913, withdrew free store-door collection and delivery service in Washington and Baltimore.

"This action on the part of the Commission is without prejudice to your right to file formal complaint."

A similar notice was sent to Baltimore.

ORGANIZATIONS.

Presidents Elliott and Hannaford Entertained at Dinner.—On August 11th, the Association of Commerce at St. Paul, Minn., entertained Mr. Howard Elliott, the retiring president of the Northern Pacific and Mr. J. M. Hannaford, the incoming president of the same road, at a dinner. Mr. Elliott in addressing the Association and its guests spoke of the possibilities of the new Union Depot at St. Paul and said in part:

"Three weeks ago, I had hoped to remain in St. Paul, and one piece of work I had hoped to help work out was the problem of a new Union Station. This problem is more difficult than it would appear. Money rates are much higher than formerly. To raise the twelve or fifteen million dollars necessary for this project and pay six per cent upon it is much more difficult than when the rate was four per cent. And it is especially difficult in the face of a two-cent passenger rate, instead of three cents, and the other adverse conditions brought about by unfavorable legislation.

"There seems to be an awakening, however, on the part of the whole country, to that fact that if all is to be done in this direction that the railroads want to do, there will have to be some cessation of this continuous assault upon the railroads by the legislative bodies. In order that the public may be well served, and their employes well paid, the railroads must be permitted to make a legitimate profit on the money invested."

Mr. Hannaford, in making comparison between the Northern Pacific as it was when he entered it forty years ago, as it was when Mr. Elliott became president, and as it is to-day, said:

"Mr. Elliott came to us in October, 1903, and has remained with us ten years, the longest time any president has ever served. And I am free to say that those ten years under Mr. Elliott have been the most pleasant I have ever spent with the Northern Pacific. Under the policy Mr. Elliott has pursued, the road has been very prosperous, and it has done much to further the growth of the great Northwest. If I can be a part in the continuance of that policy, I will be happy."

Southern Railway Agents' Association Elects Officers.—The fifteenth annual convention of the Southern Railway Agents' Association held recently at Atlanta, Ga., was brought to a close with the election of officers for the ensuing year, as follows: C. G. Walker, Louisville, president; C. E. Coffey, East S. Louis, vice-president; W. J. Townsend, Augusta, secretary; and J. M. Bryan, Columbia, S. C., treasurer. The Executive Committee was named as follows: J. M. Fagan, Savannah; W. D. Post, Atlanta, and O. L. McKay, Meridian, Miss.

Meeting of the International Railway Congress Association.—The permanent commission of the International Railway Congress Association, at its meeting in Brussels, last month, decided that the next session of the Congress should be held at Berlin, June 21 to July 3, 1915.

End of Chamber of Commerce Tour.—Confident that they have succeeded in arousing a spirit of co-operation among business men of the west, the directors of the Chamber of Commerce of the United States ended at St. Paul, their long trip.

Among the speakers at a luncheon given to the visitors were James J. Hill, John H. Fahey, of Boston, and Harry A. Wheeler, of Chicago, president of the chamber.

Mr. Hill said that "big things must be done in a big way," and that "the success of the Chamber of Commerce of the United States will be measured by the support given it by the business men of the country."

National Industrial Traffic League Opposes Bill.—The National Industrial Traffic League has instructed its legislative committee to use its influence in opposition to a bill pending in Congress which is designed to empower the Interstate Commission to enforce a uniform classification of freight rates throughout the country. In lieu of such a law the league favors the creation of a committee composed of railroad officials from the southern, eastern and western sections of the country which would devote its entire attention to classification matters and permit shippers to present evidence and arguments before it in relation to the classification problems at least once a month.

Legislative Board of Order of Railway Conductors Formed.—A legislative board of the Order of Railway Conductors, has been organized at Jackson, Miss., to pass upon the merits and demerits of office-seekers and to look after legislation affecting railway organizations. At the last national convention of the Order of Rail-

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way Conductors, it was made mandatory on all divisions of the order to participate in politics, each state being required to organize boards like the one formed at Jackson.

Convention of Locomotive Engineers at Montreal.—Delegates of the International Brotherhood of Locomotive Engineers, in annual convention at Montreal, after being officially welcomed to the city, heard an address by J. P. B. Casgrain, of Montreal, who urged the Brotherhood to take more active interest in politics. He complained that only one engineer had gone to Ottawa when the two-pays-a-month bill was passed by parliament in 1911.

Northern Pacific Entertain Passenger Agents.—At the close of the convention of the American Association of Passenger Agents, September 9th, at St. Paul, Minn., the agents became the guests of the Northern Pacific Railway for a tour of Yellowstone National Park. A special train took the party over the Northern Pacific to Gardiner, Mont., whence it was transported by stage coach through the park, the stage journey lasting five and one-half days. The entire trip occupied eleven days.

Mining Show and Annual Convention of the American Mining Congress.—The American Mining Congress will hold its first national Mining Show in Philadelphia, at Horticultural Hall, October 17th to 24th. "The exposition will be the first general national clearing house between the men who make mining machinery and the men who use such machinery," said Mr. Richard L. Humphrey, the director of the exposition. "It is proposed to bring together at the exposition a variety of exhibits affording instructive object lessons of greatest value to the future of the mining industry. The American Mining Congress and the first mining exposition will afford an unusual opportunity for the interchange of views, and is by far the most comprehensive attempt that has been made in the history of the mining industry to demonstrate its needs and the efficient utilization of the mineral resources of the country."

Outing of Traffic Club of Chicago.—The annual midsummer outing of the Traffic Club of Chicago, was held on Thursday, July 31st, in the form of a picnic at Dellwood Park, near Joliet, Ill., and was attended by over 350, including members and their families and guests. A special train from Chicago to Joliet and return was furnished by the Rock Island, and special trolley cars between Joliet and the park by the Chicago and Joliet Electric Railway. The program included various races and contests, a chicken dinner, dancing, and a baseball game between teams of the Chicago and St. Louis Traffic Clubs.

To Preside Over International Engineering Congress, 1915.—Col. George W. Goethals, chairman of the Isthmian Canal Commission and chief engineer of the Panama Canal, has accepted the Honorary Presidency of the International Engineering Congress and will preside in person over the general sessions to be held in San Francisco, September 20-25, 1915.

Meeting of International Refrigeration Congress.—President Wilson will receive the foreign delegates to the International Congress of Refrigeration. The Congress will meet in Chicago on September 17th to October 1st, and the foreigners will stop here on their way West from New York.

Secretary Houston, as honorary president of the Congress, will be one of the principal speakers at the sessions in Chicago. Dr. Harvey W. Wiley, former chief chemist of the Department of Agriculture, also will speak.

Industrial Traffic Managers Meet.—At the regular meeting of the Industrial Traffic Managers a representative of the Postal Department explained in detail the workings of the parcel post, methods of tracing, etc.

Convention of Railway Gardening Association.—With the selection of F. W. Vail, of Dunellen, N J., as president and New York City as the next meeting place the members of the Railway Gardening Association of America concluded the business of their seventh annual convention at Nashville, Tenn., August 14th. Other officers elected were: J. A. Byrne, Maryland, vice-president; W. F. Hutchinson, Pennsylvania, secretary; and J. K. Wingert, Pennsylvania, treasurer.

Outing of Traffic Club of Pittsburgh. — The Traffic Club of Pittsburgh held a notably successful outing at Idlewild Park, August 11th.

There were two chief events—a ball game between the teams of the Pittsburgh and Baltimore Traffic clubs, and a chicken and waffle supper.

About fifteen of the principal traffic men of Baltimore came to Pittsburgh as guests of the local club, and the trip was made to Idlewild in a special train, with President E. C. Sattley in command. N. J. Elliott, president of the Baltimore Traffic Club, was among the visitors.

Meeting of Mining Engineers.—The meeting of the American Institute of Mining Engineers was convened at Butte, Mont., August 18th. The sessions were opened with an address of welcome by C. F. Kelley, vice-president of the Anaconda Copper Mining Company. Charles F. Rand, of New York, president of the institute, responded.

Convention of Traveling Engineers' Association.—The twenty-first annual convention of the Traveling Engineers' Association, was held in Chicago from August 12th to 15th. This organization now has a membership of 957, a gain of 75 members over last year. Among the reports submitted was one on uniform instructions to engineers on the handling of superheated locomotives, which also contained, besides a list of valuable instructions, a brief outline of the purpose of the superheater.

A report by N. J. Howley, of the Erie Railroad, clearly pointed out the various means by which the operating department can assist in reducing fuel costs, and W. C. Hayes, superintendent of locomotive operation of the Erie outlined those features of the Master Mechanics' June Convention, which were of special interest to the Traveling Engineers.

A report on the subject of the car or locomotive brake equipment on the line and at terminals was read and discussed, and papers read on the

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advantages obtained with a brick arch in locomotive service and on what can be done to eliminate the black smoke evil.

The Convention was also addressed by D. R. McBain, superintendent of motive power of the Lake Shore and Michigan Southern Ry.; H. C. Bayless, mechanical engineer, of the Minneapolis, St. Paul and Sault Ste. Marie Railway and W. B. Storey, vice-president of the Atchison, Topeka and Santa Fe Ry.

September Meeting of Central Railway Club.—The next regular meeting of the Central Railway Club will be held at Buffalo, September 12th. The chief feature of the docket will be an important paper on "Freight Car Privileges," by J. C. Fritts, of Scranton, Pa., master car builder of the Delaware, Lackawanna and Western Railroad.

LEGAL.

Government Seeks to Attack Suit Against Philadelphia and Reading.—The Federal Government has renewed its attack upon the so-called anthracite trust by filing a suit in the United States District Court at Philadelphia, against the Philadelphia and Reading and its affiliated companies, under the Sherman anti-trust law and the commodities clause.

This represents an effort on the part of the Wilson administration to take up this prosecution where it was left at the end of the Taft administration. There is, however, one feature which distinguishes this suit from the ones brought under the Taft administration and which is a new departure in suits under the Sherman anti-trust law. Attorney-General McReynolds in his prayer to the court to break the Reading's control over the Central Railroad of New Jersey and other corporations, which he contends are engaged in a conspiracy against the Sherman anti-trust law, asks that the Reading company be required to dispose of the capital stock of these corporations "to persons not its stockholders or agents, nor otherwise under its control or influence."

This prayer seems that Attorney-General McReynolds intends to have settled in advance in this case the question that caused so much controversy in the Union Pacific-Southern Pacific dissolution case.

The suit filed is a continuance of the action involved in the recent Supreme Court decision in the Reading case.

Commission's Order Reversed.—Judge Gray in the United States Circuit Court of Appeals at Philadelphia, has reversed the decision of the District Court, which awarded Naylor & Co. a verdict aggregating $9,000 in a suit against the Lehigh Valley Railroad, the Buffalo, Rochester & Pittsburgh Railway, the New York Central & Hudson River Railroad, the Philadelphia & Reading Railway Company, the Central Railroad of New Jersey and the Delaware, Lackawanna & Western Railroad, brought to recover damages for alleged illegal discrimination in freight rates.

Naylor & Co. complained to the Interstate Commerce Commission that it had been discriminated against in rates on pyrites cinder, by rail from Buffalo, N. Y., to points in Pennsylvania and New Jersey. The Commission upheld the complaint and awarded Naylor & Co. damages. Upon this award the verdicts were returned by a jury in the District Court. Judge Gray, in reversing the jury's finding, held that there was not sufficient evidence adduced before the Commission to warrant the making of the awards.

Oklahoma Roads to be Sued for Refunds.—Attorney-General West, of Oklahoma, is preparing actions against the principal railways of this State to collect the refunds due on passenger tickets sold within the State during the past three and one-half years. For conducting these actions in court the Legislature has appropriated $25,000 and the bill has been signed by Governor Cruce. The State Corporation Commission estimates the total amount due to be $5,721,646. When the Oklahoma railroads secured the injunction from Federal Judge Hook, three and one-half years ago, preventing the State from enforcing the two-cent passenger fare, it was with the provision that a coupon should be issued to the purchaser of each ticket for the additional one cent per mile charged until such time as the two-cent fare cases were decided in the highest court.

If the State is successful in collecting the full amount, fully three-fifths of the total amount will go to the State owing to the failure of ticket purchasers to save their coupons. It is estimated that anywhere from one-third to two-fifths of the coupons were thrown away. It is generally understood that the railways will oppose the payment of any coupons excepting those presented by ticket purchasers.

Suit to Annul Express Contract with Boston & Maine.—The annulment of a contract between the Boston & Maine Railroad and the American Express Company on the ground that it is unjust and inequitable to the railroad and fraudulent to the stockholders is sought in a bill in equity filed in the Superior Court at Concord, N. H., by Mrs. Clementine B. Wentworth, of Concord, a stockholder of the road.

The bill alleges that the contract has resulted in a loss of $4,000,000 to the railroad, and that so long as it remains in force the road will continue to lose $700,000 annually.

Katy Calls Halt in Texas Improvements.—President C. E. Schaff, of the Missouri, Kansas and Texas Railway, who has returned from Texas, was asked what effect the recent action of the attorney-general of that State in instituting suit against the Katy for penalties exceeding $105,000,000 for alleged violation of the anti-trust and general office statutes of Texas, would have on plans for developing the Missouri, Kansas and Texas Railway of Texas and its allied lines. He replied that all work of improvement and extension would necessarily have to be suspended, as the officers and directors could not afford to take the responsibility of expending additional money for improving and extending railroad property in Texas in the face of the hostile attitude of the State administration, manifested by this litigation.

Railway Commission of Iowa Meets Defeat on Special Rate Order.—The State Railroad Commission, of Iowa, has been defeated in its attempt to compel the railroads to make a rate of one and one-half cents for the benefit of the

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State Fair. The Federal Circuit Court of Appeals has decided that the State Legislature exceeded its constitutional authority in enacting legislation establishng this rate. The court held that while the State had power to fix maximum rates, it cannot suspend such rate and make a still lower rate for the exclusive benefit of a class for a limited period.

Northern Central Lease Still in Litigation.—The Northern Central lease litigation promises to be as famous in the annals of corporation law as that of Jarndyce vs. Jarndyce is in fiction. For three years or more the matter has been pending in the courts, and there is little prospect of an end of the dilatory proceedings. The lease has been fully approved by the principal parties, the Northern Central and the Pennsylvania Railroad, but stockholders of the Northern Central Company, representing about 3,000 shares or less, have brought four suits in the courts with the idea of obstructing and defeating the lease.

While those opposed to the lease have accomplished nothing but delay, it is apparent that the case cannot be held open forever. Northern stockholders, to the extent of about 97 per cent, heartily favor the lease.

Railroads of Maryland Attack State Commission's Car Loading Order.—Railroads operating in Maryland have appealed to the Circuit Court of Baltimore from the order passed by the Public Service Commission on July 13th last extending from 48 to 60 hours the time allowed for loading and unloading freight cars on country sidings in this State. A preliminary injunction restraining the enforcement of the order was granted by Judge Harlan.

Suit Against Missouri Roads.— The assistant attorney-general of Missouri has announced that his department would institute a suit soon against the railroads of Missouri, seeking to require them to refund the money collected in excess of the provisions of the Two-Cent Law and the Maximum Freight Rates Law during the time the law was held up in the Federal courts.

The railroads declined to make refunds when proof was made of excess payment, and the department is now preparing to bring the suit.

Alabama Rate Fight.—The Western Railway of Alabama has obtained a temporary restraining order against the putting into effect of the 2½-cent passenger rate of Alabama, pending the determination of the case by the Federal Court.

STATE RAILWAY COMMISSIONS.

California.— The State Railroad Commission has ordered reductions in the express rates of Wells, Fargo & Company amounting to a cut of $750,000 for present annual revenues. Every rate of the company in this State is abolished by the order, which is effective October 1st, and over three million new rates devised by the Commission on a ten miles zone basis are ordered effective at that time.

As a result of recent fatal accidents at grade crossings, the Commission has made the following announcement: "What a few years ago were deemed unsurmountable obstacles to an under grade or over grade crossing are now treated as only engineering difficulties, which skill and capital can generally overcome. It is, therefore, the settled policy of this Commission when one railroad desires to cross another, or where it is desired that the highway cross a railroad or vice versa, to require such crossing to be made by subway or overhead crossing whenever and wherever it is practicable and feasible so to do."

Illinois.—What is expected to be one of the most vigorously contested cases relative to switching charges in Chicago ever heard by the Railroad & Warehouse Commission will be presented to that body within the next few weeks. The Chicago Board of Trade is the complainant and the defendants include the Atchison, Topeka & Santa Fe, Chicago & Alton, Chicago & Eastern Illinois, Illinois Central and Wabash road. The latter companies are accused of refusing to absorb switching charges on Illinois grain in the Chicago switching district, and, as a result, it is alleged that there has been discrimination against the Chicago Board of Trade and the grain shippers and producers throughout the State.

Kansas.—The Public Utilities Commission has granted railroads in the State authority to transport seed wheat free of charge between all points in Kansas. This was done in response to the petition of a committee of citizens from the southwestern part of the State, a district that has been seriously affected by the dry weather.

Louisiana.—In granting the petition of the Sibley, Lake Bistineau & Southern Railway Company, the Commission has discussed at length its attitude with regard to granting rate increases and the reasons which it feels are of a compelling character in arriving at a favorable decision.

The question before the Commission, the decision says is what are reasonable rates for the service performed. In considering the question, the Commission contemplates the continuance of the railroad, not its dissolution. As long as the railroad is there, the public has a right to its use, upon reasonable terms, and it is not the province of this Commission to assume that it will not be operated in good faith, for years to come. This Commission has publicly announced through its former rulings, and its proceedings before the Interstate Commerce Commission, and the Commerce Court, that this railroad will be regarded as a common carrier, and required to perform its functions as such to the full extent of its power over railroad corporations. In exercising its powers, the Commission has at all times recognized its duty to the public. It must protect their interest, and see that reasonable rates are charged, extortion prevented and discriminations eliminated. But, in performing its duties, the Commission has well settled rules of action that must be followed, and a jurisprudence that sets at rest many questions of doubt as to what it may or may not do.

The Supreme Court of Louisiana has, in four important decisions, two affecting rates and two affecting the service of common carriers, held that the Commission cannot require a service by a public carrier to be performed at a loss. When, after a full investigation, the Commission finds that the cost of performing a particular service is greater than the revenue derived therefrom, or

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that the financial operations of a railroad are such that its business must be conducted at a loss, then, in fairness to all concerned, and as a matter of simple justice, it must permit such advances to be made as will aid in building up the revenues to the point where the railroad can, at least, meet its operating expenses.

This must be done with as little injury to shippers as possible. The extra cost of the service must be distributed so as to make the burden as light as possible, and as equal as possible.

Advances in rates have not been countenanced by the Commission, except in extreme cases. The Commission considers all the railroads in Louisiana necessary. Rates are ordinarily higher during development periods than when population becomes dense and traffic increases, and, when a case is presented where by an advance in freight rates only can losses be prevented, moderate advances will be allowed, subject, as are all rates, to be reduced whenever the revenues of the company justify a reduction.

The Railroad Commission has taken up for consideration the following rule for adoption:

Rule.

All railroads operating in the State of Louisiana shall give all passenger trains preference over freight trains and shall handle said passenger trains and coaches promptly on their lines, and at all junctions, stations, terminal points and river transfers.

Massachusetts.—On September 22d the Public Service Commission will give a public hearing on the question of burning oil instead of coal in the locomotives of the New York, New Haven & Hartford Railroad in the Cape Cod district. Under the new railroad law the Commission can order this change, if it desires.

This move comes from the State Forestry Department. State Forester Rane has petitioned the Public Service Commission to order that the locomotives on the New Haven lines in Barnstable County be equipped with oil burners so that oil may be used while the trains operate in that county, which includes the Cape district. The State forester explains that there always is danger of forest fires on the Cape, and that there have been an unusually large number of fires this summer owing to the dryness of vegetation, and it is found that most of the fires are set by sparks from locomotives. He says the railroad has done everything it can with its present equipment to prevent fires, has adopted spark arresters and has cleaned its right of way along the tracks.

Minnesota.—The first application ever made in Minnesota by shippers for an increase in freight rates was denied August 12th, by the State Railroad and Warehouse Commission. The application was made by Minneapolis and St. Paul wholesalers, who desired an order allowing the railroads to increase their carload rates on cereal products of grain, or reduce the less than carload rates on such cereals.

Missouri.—Martin L. Clary, of St. Louis, vice-president and general solicitor of the Missouri Pacific Railroad has applied to the State Public Service Commission August 1st, for authority to issue $28,584,500 of refunding bonds.

The Commission approved the issue. The bonds run for fifty years and draw interest at six per cent per annum.

The State Utility Commission has authorized the Chicago & Alton Railroad Company to issue $861,000 of betterment bonds, based upon a general mortgage of July 1, 1912.

The State Public Service Commission will soon be called upon to rule upon the question of switching charges. A number of complaints have reached the Commission that the roads are now exacting switching charges, which were absorbed before the maximum freight law became effective.

The Public Service Commission has received a complaint from the Kansas City Board of Trade that the trunk lines entering that city were collecting reconsignment charges on freight reconsigned at that place. The railroads claim that as the freight yards are in Kansas City, Kan., they are entitled to an additional charge in interstate business.

New Jersey.—The following notice has been sent to the stockholders of the West Jersey & Seashore Railroad:

"The Board of Public Utilities Commissioners of the State of New Jersey has withheld its approval of the lease to the Pennsylvania Railroad Company, of the railroad property and franchises of the West Jersey & Seashore Railroad Company and the latter company, having been advised by its counsel that the lease is proper and legal, both in form and substance and ought to have been approved by the said board, and that its action should be judiciously reviewed, has determined to institute such proceedings as shall be appropriate for that purpose.

"Although the lease has been duly authorized by the action of both companies, it has not yet been executed and delivered, and cannot become effective without the approval of the Public Utility Commission. If and when such approval has been obtained and the lease has been executed and delivered, it shall become effective from and as of July 1, 1913."

New York.—Because of Governor Sulzer's veto of the bill appropriating $250,000 to the Public Service Commission of the second district for the elimination of grade crossings, Commissioner Devoe P. Hodson has announced that no further hearings will be given on grade crossing abatement proceedings until the Commission is supplied with funds for this work.

Ohio.—Authority to issue $1,000,000 of five per cent equipment trust certificates has been granted by the Public Service Commission to the Hocking Valley Railroad Company. The certificates are to be sold for not less than $942,920. The road is to purchase 1,000 new 50-ton steel cars, new engines and other equipment.

The Public Service Commission has modified its recent order authorizing the Pittsburgh, Cincinnati, Chicago & St. Louis Railroad Company to issue $7,000,000 four per cent bonds to be sold at not less than 92, by permitting an increase in the interest rate to 4½ per cent. The company stated it could not dispose of the bonds at the old rate of interest.

Pennsylvania.— Pennsylvania's Public Service Commission, created by the act of July 26, 1913,

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to supersede the State Railroad Commission, and to have authority over the service, rates and operation of more than a score of classes of public utilities, has been appointed by Governor John K. Tener, as follows:

Nathaniel Ewing, Chairman, Fayette County, chairman Railroad Commission from its organization in 1908, and former United States Court Judge, ten-year term.

S. Larue Tone, Allegheny County, general manager and chief engineer Pittsburgh Railways, nine-year term.

Samuel W. Pennypacker, former Governor and former Judge, member Railroad Commission, eight-year term.

Emory R. Johnson, Philadelphia, professor of transportation and commerce expert, University of Pennsylvania, seven-year term.

Milton J. Brecht, Lancaster, member Railroad Commission, six-year term.

Charles Frederick Wright, Susquehanna, banker and former State Treasurer, five-year term.

Frank M. Wallace, Erie, banker, four-year term.

The Public Service Commission has decided that no demurrage should be charged on any cars which, by reason of the frozen condition of the cargo, were incapable of being unloaded within the free period after constructive delivery and which were unloaded within that period after the condition of the coal admitted of that being done.

The opinion is the result of a complaint filed against the Pennsylvania Railroad Company by the Terminal Coal Company of Philadelphia.

Texas.—The Commission has under consideration the following proposed transit rules and regulations, the adoption of which is urged by the Texas Grain Dealers' Association: The connecting carrier rule on grain to be changed so that stopping in transit shall apply the same from any point or origin as it is on milling in transit. The back-haul and out-of-line haul to be the same rate and distance estimate, both grain products and grain, and the minimum distance adjustment to be the same on both. The six months' stoppage to be changed to ten months, with minimum of two months, where miller buys the grain that has already stopped in transit. The right to forward on transit, regardless of point or railroad line of origin, to be the same as under the milling-in-transit rule, or let the outbound line sign the outbound bill of lading on inbound expense bills via any other line. Stoppage in transit charge on oats and corn to be abolished. Regulations to be embraced in one joint circular. Readjustment of grain rates so as to reduce the excessive rates over two or more lines for short hauls and to abolish the three-line arbitrary on corn and oats.

ELECTIONS AND APPOINTMENTS.

Executive.

James M. Buick, president, Sligo & Eastern Ry. Headquarters, St. Louis, Mo.

H. M. Biscoe, vice-president, Boston and Albany Railroad.

Hon. W. Murray Crane, director, New York, New Haven & Hartford Railroad.

W. P. Clough, chairman of the Board, Northern Pacific Railway.

William C. Fordyce, president, Colorado, Kansas & Oklahoma. Headquarters, St. Louis, Mo.

J. N. Githens, assistant to vice-president, Missouri Pacific Railway Company. Headquarters, St. Louis, Mo.

Edward F. Goltra, vice-president, Colorado, Kansas & Oklahoma. Headquarters, St. Louis, Mo.

J. H. Hustis, vice-president, New York, New Haven & Hartford Railroad.

J. E. Hall, vice-president and general counsel, Hawkinsville & Florida Southern. Headquarters, Macon, Ga.

J. M. Hannaford, president and director, Northern Pacific Ry.

John H. Hunter, president, Brinson Railway. Headquarters, Savannah, Ga.

George W. Hunter, receiver, Louisiana & North West Railroad.

James Imbrie, chairman, Brinson Railway.

J. M. Johnson, vice-president in charge of traffic, Denver & Rio Grande R. R., and Western Pacific Ry. Headquarters, St. Louis, Mo.

C. W. Jones, president and general manager, Chicago, Rock Island & Gulf Ry. Headquarters, El Reno, Okla.

H. U. Mudge, chairman of the Board of Directors, Chicago, Rock Island & Gulf Ry.

Senator S. M. Porter, second vice-president, Pawhuska and Northeastern Ry.

George T. Slade, first vice-president, Northern Pacific Ry.

R. P. Stevens, president, Mahoning & Shenango Railway & Light Company. Headquarters, Youngstown, Ohio.

J. B. Tolson, president, Pawhuska and Northeastern Ry.

W. C. Tucker, first vice-president, Pawhuska and Northeastern Ry.

Theodore N. Vail, member, executive committee, New York, New Haven and Hartford Railroad.

Joseph Woods, president, Dayton & Union R. R.

Mrs. Cora B. Williams, president, Georgia, Alabama & Florida Railroad.

Frank S. Yantis, vice-president, general manager and treasurer, Colorado, Kansas & Oklahoma. Headquarters, Scott City, Kansas.

Legal.

W. C. Chisholm, K. C., general solicitor, Grand Trunk Railway. Headquarters, Montreal, Que.

W. E. Foster, solicitor, Grand Trunk Railway. Headquarters, Montreal, Que.

Lee Monroe, general counsel, Colorado, Kansas & Oklahoma. Headquarters, Topeka, Kansas.

Hon. Walter C. Noyes, general counsel, Delaware and Hudson Company. Headquarters, New York.

Financial.

W. V. Delahunt, secretary, Colorado, Kansas & Oklahoma. Headquarters, St. Louis, Mo.

R. L. Gurney, assistant treasurer, Colorado, Kansas & Oklahoma. Headquarters, St. Louis, Mo.

Robert M. Hitch, secretary, Brinson Railway.

W. P. Hopper, secretary and treasurer, Hawkinsville & Florida Southern. Headquarters, Macon, Ga.

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A. H. Hurley, treasurer, Pawhuska and Northeastern Ry.

Wm. G. Little, assistant secretary, auditor and traffic manager, Colorado, Kansas & Oklahoma. Headquarters, Scott City, Kansas.

William Murphy, assistant secretary, Brinson Railway.

L. F. Roberts, secretary, Pawhuska and Northeastern Ry.

Accounting.

W. B. Buchannon, auditor, Hawkinsville & Florida Southern. Headquarters, Macon, Ga.

T. S. Ford, auditor, in charge of accounting matters, San Antonio and Gulf. Headquarters, San Antonio, Texas.

J. B. McLaren, auditor of freight accounts, Grand Trunk Ry. Headquarters, Montreal, Que.

Joseph Nicholson, auditor of disbursements, Sunset-Central Lines of the Southern Pacific Company. Headquarters, Houston, Texas.

E. W. Peabody, statistician, Missouri, Kansas and Texas. Headquarters, St. Louis, Mo.

V. C. Veasey, auditor, Texas State Railroad. Headquarters, Rusk, Texas.

Engineering and Mechanical.

J. F. Bowden, district superintendent of motive power, Baltimore and Ohio Railroad. Headquarters, Wheeling, W. Va.

J. H. Conlan, general roadmaster, Colorado Lines, Denver & Rio Grande. Headquarters, Denver, Colo.

W. T. Cousley, master car builder, San Antonio & Aransas Pass. Headquarters, San Antonio, Texas.

G. M. Crownover, superintendent of motive power, Chicago Great Western Railroad.

J. J. Daily, roadmaster, first district, Oregon Short Line. Headquarters, Kemmerer, Wyo.

W. C. Groening, master mechanic, Pere Marquette Ry. Headquarters, Wyoming, Mich.

M. W. Jones, superintendent of telegraph and telephone, Guayaquil & Quito. Headquarters, Hulgra.

J. W. Knapp, superintendent terminals (Newport News), Chesapeake and Ohio Railroad. Headquarters, Newport News, Va.

E. O. McCrain, general yardmaster, Baltimore terminals, Western Maryland Railroad. Headquarters, Hillen Station.

C. L. McIlvaine, master mechanic, New York, Philadelphia & Norfolk Ry. Headquarters, Cape Charles City, Virginia.

J. E. McQuillen, mechanical superintendent, Gulf, Colorado and Santa Fe Ry. Headquarters, Cleburne, Texas.

J. C. Mill, signal engineer, Chicago, Milwaukee & St. Paul. Headquarters, Milwaukee, Wis.

S. M. Page, signal supervisor, Chicago & Alton R. R. Headquarters, Bloomington, Ill.

G. A. Schmoll, district superintendent of motive power, Baltimore and Ohio Railroad. Headquarters, Pittsburgh, Pa.

George Thomson, assistant master car builder, Michigan Southern Division, Lake Shore & Michigan Southern. Headquarters, Englewood, Ill.

E. M. Wilcox, division general foreman, Lake Shore & Michigan Southern. Headquarters, Englewood, Ill.

Operation.

Richard L. Barrett, trainmaster, Pittsburgh, Shawmut & Northern R. R. Headquarters, St. Mary's Junction, Pa.

W. L. Booth, superintendent, Chesapeake and Ohio Railroad of Indiana. Headquarters, Peru, Ind.

C. E. Brooks, assistant superintendent, Montana Division, Oregon Short Line. Headquarters, Pocatello, Idaho.

L. S. Brown, superintendent, Truro, Sydney and Oxford District of the Intercolonial. Headquarters, New Glasgow, N. S.

G. A. Chandler, superintendent of car service, St. Louis, San Francisco & Texas and the Ft. Worth and Rio Grande. Headquarters, Ft. Worth, Texas.

D'Alton C. Coleman, general superintendent, Alberta Division, Canadian Pacific Ry.

J. P. Cowley trainmaster, Gulf, Colorado & Santa Fe Ry. Headquarters, Beaumont, Texas.

M. Dailey, general manager, Muscatine North & South Railway. Headquarters, Muscatine, Iowa.

J. J. Donnelly, trainmaster, Gulf, Colorado & Santa Fe Ry. Headquarters, Temple, Texas.

F. C. Dow, trainmaster, Musselshell Division, Chicago, Milwaukee & St. Paul. Headquarters, Miles City, Mont

James Doyle, assistant superintendent, First Division, Houston & Texas Central. Headquarters, Ennis, Texas.

J. E. Duval, general superintendent car service, Grand Trunk Railway. Headquarters, Montreal, Que.

Frank S. Elliott, general superintendent, Central District, Great Northern Ry.

R. R. Farmer trainmaster, Missouri, Kansas & Texas Ry. Headquarters, Sedalia, Mo.

C. J. Field, general manager, Orangeburg Railway. Headquarters, Orangeburg, S. C.

H. B. Fleming, assistant superintendent, National Transcontinental Railway.

E. I. Ford, superintendent, Richmond Division, Chesapeake and Ohio Railroad. Headquarters, Richmond, Va.

J. W. Forgason, assistant superintendent, Victoria Division, Galveston, Harrisburg and San Antonio. Headquarters, Victoria, Texas.

S. W. Gibson, efficiency superintendent, Northern Illinois and Southern Wisconsin Division, Wells Fargo & Co.

J. A. Gordon, general superintendent, Western District, Pere Marquette. Headquarters, Grand Rapids, Mich.

Harry D. Grimshaw, superintendent, Alabama Division, Seaboard Air Line. Headquarters, Americus.

Fred Hanssen, assistant superintendent, Portland Division, Southern Pacific Company.

C. S. Harrell, general manager, Valdosta, Moultrie & Western R. R. Headquarters, Valdosta, Ga.

Guy Hopkins, acting superintendent, Louisiana Western R. R., and Morgan's Louisiana & Texas R. R. Headquarters, New Orleans, La.

H. F. Houghton, general superintendent, Big Four, New York Central Lines. Headquarters, Indianapolis, Ind.

W. R. Hudson, general superintendent, Kentucky general division, Chesapeake and Ohio Railroad. Headquarters, Covington, Ky.

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W. C. Hurst, general superintendent, Eastern District, Pere Marquette. Headquarters, Saginaw, Mich.

C. O. Jenks, general superintendent, Lake District, Great Northern. Headquarters, Superior, Wis.

W. F. Kaderly, general superintendent, Georgia Southern & Florida and the Hawkinsville & Florida Southern. Headquarters, Conneaut, Ohio.

S. L. Kamps, inspector of transportation, Chicago Great Western Railroad. Headquarters, Chicago, Ill.

W. M. Knowd, trainmaster, Gulf, Colorado & Santa Fe Ry. Headquarters, Temple, Texas.

W. E. Livingston, superintendent, St. Louis, San Francisco & Texas and the Ft. Worth and Rio Grande. Headquarters, Ft. Worth, Texas.

W. S. Martin, general manager, Denver and Rio Grande Ry. Headquarters, Denver, Colo.

T. H. Mason, trainmaster, Fourth District, Grand Trunk System. Headquarters, Montreal, Que.

T. F. Milligan, trainmaster, Cascade Division, Great Northern Ry. Headquarters, Everett, Wash.

C. Murphy, general superintendent, Manitoba Division, Canadian Pacific Railway.

H. H. Morris, superintendent, Ashland Division, Chesapeake and Ohio Railroad. Headquarters, Ashland, Ky.

M. A. Neville, general superintendent, Cincinnati Northern Railroad. Headquarters, Van Wert, Ohio.

Macy Nicholson, assistant general superintendent, Great Northern. Headquarters, Great Falls, Mont.

J. H. O'Neill, assistant general superintendent, Western District, Great Northern Railway. Headquarters, Spokane, Wash.

R. E. Pague, car distributor, Western Maryland Railroad. Headquarters, Baltimore, Md.

J. H. Palmer, superintendent and car accountant, Hawkinsville and Florida Southern. Headquarters, Ashburn, Ga.

O. Pierce, trainmaster, Chicago Division, New York, Chicago & St. Louis Ry. Headquarters, Ft. Wayne, Ind.

F. Price, superintendent of car service, Grand Trunk Railway System. Headquarters, Montreal, Que.

J. S. Pyeatt, manager for receiver, St. Louis, Brownsville & Mexico, the Beaumont & Sour Lake and the Orange and Northwestern. Headquarters, Houston, Texas.

Henry J. Roth, trainmaster, Centralia and Carbondale Districts, Illinois Central. Headquarters, Carbondale.

F. B. Sanford, trainmaster, Cherokee Division, Missouri, Kansas & Texas Ry. Headquarters, Muskogee, Okla.

George H. Schleyer, general manager, St. Louis, San Francisco & Texas and the Ft. Worth & Rio Grande. Headquarters, Ft. Worth, Texas.

I. C. Schreck, trainmaster, Michigan Division, Cleveland, Cincinnati, Chicago & St. Louis Ry. Headquarters, Wabash, Ind.

J. P. Stevens, general superintendent, Virginia general division, Chesapeake & Ohio Railroad. Headquarters, Richmond, Va.

F. P. Stocker, trainmaster, Choctaw Division, Missouri, Kansas & Texas. Headquarters, Muskogee, Okla.

E. E. Taylor, trainmaster, Gulf, Colorado & Santa Fe Railway. Headquarters, Galveston, Texas.

J. F. Thompson, general manager, freight department, Atchison, Topeka & Santa Fe Ry. Headquarters, Chicago, Ill.

C. L. Titus, assistant superintendent, Buffalo Division, New York, Chicago & St. Louis R. R. Headquarters, Conneaut, Ohio.

D. Van Hecke, trainmaster, Oklahoma Division, Chicago, Rock Island & Pacific Ry. Headquarters, El Reno, Okla.

R. C. Watkins, superintendent, Houston Division, Galveston, Harrisburg & San Antonio Ry. Headquarters, San Antonio, Texas.

C. C. Walker, assistant general manager, Chesapeake & Ohio. Headquarters, Richmond, Va.

P. T. White, trainmaster, Cleveland, Cincinnatti, Chicago & St. Louis Ry. Headquarters, Cleveland, Ohio.

O. C. Wyman, trainmaster, Cleveland, Cincinnati, Chicago & St. Louis Ry. Headquarters, Springfield, Ohio.

Traffic.

F. G. Adams, division freight agent, Grand Trunk Pacific Ry. Headquarters, Edmonton, Alta.

H. M. Adams, freight traffic manager, Denver & Rio Grande and Western Pacific Ry. Headquarters, San Francisco, Cal.

A. E. Allen, assistant general freight agent, Boston & Albany R. R. Headquarters, Boston, Mass.

Ira S. Auch, general agent, Erie Railroad Company. Headquarters, Philadelphia, Pa.

Walter A. Barrows, general passenger agent, Boston & Albany. Headquarters, Boston, Mass.

Charles S. Bentley, commercial agent, Delaware, Lackawanna & Western. Headquarters, Toledo, Ohio.

H. Brandt, general agent, passenger department, Pacific Coast Steamship Company. Headquarters, Seattle, Wash.

E. J. Brooks, traveling freight agent, Western Maryland Railway. Headquarters, Hagerstown, Md.

J. S. Buchanan, commercial agent, Wabash Railroad. Headquarters, Hannibal, Mo.

Harry M. Buck, traveling freight and passenger agent, Kansas City & Memphis Railway. Headquarters, Fayetteville, Ark.

H. C. Bush, traffic manager, Idaho and Washington Northern Railroad. Headquarters, Spokane, Wash.

S. S. Butler, traffic manager, St. Louis, Brownsville & Mexico Ry., Beaumont, Sour Lake & Western R. R. and the Orange & Northwestern R. R. Headquarters, Houston, Texas.

Clarence R. Calvert, traveling freight agent, Illinois Central. Headquarters, Memphis, Tenn.

Y. C. Campbell, claims agent, Intercolonial Railway and the Prince Edwards Island Railway. Headquarters, New Glasgow, N. S.

R. N. Card, city freight agent, Grand Trunk Railway. Headquarters, Vancouver, B. C.

Claude C. Caton, agent, Lehigh Valley Railroad Company. Headquarters, South Bay, N. Y.

F. L. Chase, division passenger agent, Chicago & Alton R. R. Headquarters, Springfield, Ill.

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D. M. Condon, district passenger agent, Intercolonial Ry. Headquarters, Halifax, N. S.

F. R. Cornell, traveling freight agent, Wabash Railroad. Headquarters, Toledo, Ohio.

J. L. Craig, traveling freight agent, Wabash Railroad. Headquarters, Chicago, Ill.

Warner W. Croxton, general passenger agent, Atlanta, Birmingham & Atlantic Ry. Headquarters, Atlanta, Ga.

Stanton Curtis, assistant general passenger agent, Southern Railway. Headquarters, Chicago, Ill.

J. M. Cutler, general freight agent, Hawkinsville and Florida Southern. Headquarters, Macon, Ga.

Ewen Davidson, assistant general freight agent, Atlantic Coast Line R. R. Headquarters, Charleston, S. C.

William J. Faherty, contracting freight agent, Wabash Railroad. Headquarters, New York.

W. R. Flounders, Jr., freight solicitor, Pennsylvania Railroad. Headquarters, Philadelphia.

W. J. Frost, traveling passenger agent, Missouri Pacific. Headquarters, Indianapolis, Ind.

W. H. Glover, traveling passenger agent, Missouri Pacific Ry. Headquarters, Chicago.

E. P. Goodwin, superintendent of transportation, Chesapeake & Ohio Railroad. Headquarters, Richmond, Va.

S. Y. Henderson, commercial agent, Hawkinsville & Florida Southern. Headquarters, Hawkinsville, Ga.

M. F. Hogan, assistant commercial agent, Chicago, Milwaukee & St. Paul Ry. Headquarters, Davenport, Ia.

H. A. Howe, commercial agent, Illinois Central Railroad. Headquarters, Buffalo, New York.

A. S. Hughes, general traffic manager, Denver & Rio Grande and the Western Pacific Ry. Headquarters, Denver, Colo.

Philip Johnson, traveling passenger agent, Rock Island Lines. Headquarters, Denver, Colo.

W. I. Jones, assistant to the general traffic manager, Missouri Pacific and the St. Louis, Iron Mountain and Southern. Headquarters, St. Louis, Mo.

E. C. Kannapell, traveling freight agent, Southern Ry. Headquarters, Kansas City, Mo.

D. Kelley, assistant local freight and ticket agent, Spokane, Portland & Seattle Ry. Headquarters, Portland, Ore.

M. S. Kerley, traveling freight agent, St. Louis Southwestern. Headquarters, Shreveport, La.

A. C. Kessell, freight and ticket agent, Pennsylvania Lines. Headquarters, Dresden, Ohio.

J. E. Kirk, freight solicitor, Northern Central. Headquarters, Rochester, New York.

H. S. Leard, general passenger agent, Norfolk Southern R. R. Headquarters, Norfolk, Va.

E. L. Lomax, assistant passenger traffic manager, Denver & Rio Grande and Western Pacific Ry. Headquarters, San Francisco, Cal.

D. McDonald, district passenger agent, Intercolonial Railway. Headquarters, Montreal, Que.

E. H. McFadin, traveling freight agent, International & Great Northern R. R. Headquarters, San Antonio, Texas.

A. E. McMaster, commercial agent, Grand Trunk Pacific Railway. Headquarters, Regina, Sask.

C. J. Maley, commercial agent, Peninsular and Occidental Steamship Company. Headquarters, St. Louis.

C. O. Mann, traveling freight agent, Delaware, Lackawanna & Western. Headquarters, Cleveland, Ohio.

H. H. Melanson, general passenger agent, Intercolonial Ry. Headquarters, Moncton.

D. M. Middleton, commercial agent, Lehigh Valley. Headquarters, New York.

Howard C. Montague, commercial agent, Georgia Southern & Florida. Headquarters, Chattanooga, Tenn.

E. D. Moore, traveling baggage inspector, Southern Railway Company. Headquarters, Washington, D. C.

John A. Morgan, general agent, Scott City Northern. Headquarters, St. Louis, Mo.

E. A. Niswonger, commercial agent, Cleveland, Cincinnati, Chicago & St. Louis. Headquarters, Terre Haute, Ind.

W. T. Peacock, general agent, Cleveland, Cincinnati & St. Louis. Headquarters, Indianapolis, Ind.

C. E. Perkins, freight traffic manager, Missouri Pacific and the St. Louis, Iron Mountain & Southern. Headquarters, St. Louis, Mo.

Harold L. Peters, soliciting freight agent, Georgia Southern & Florida. Headquarters, Chattanooga, Tenn.

Fred R. Porter, assistant general freight agent, Grand Trunk Pacific Railway. Headquarters, Winnipeg, Man.

W. C. Preston, traffic manager, St. Louis, San Francisco & Texas and the Ft. Worth and Rio Grande. Headquarters, Ft. Worth, Texas.

Leslie Rawls, special representative, traffic department, Western Maryland Ry. Headquarters, Baltimore, Md.

J. W. Reigle, agent, Lehigh Valley Railroad. Headquarters, Burdett, N. Y.

W. E. Renneker, assistant general freight agent, Atlantic Coast Line Railroad. Headquarters, Wilmington, N. C.

C. B. Rhodes, general passenger agent, Hawkinsville & Florida Southern. Headquarters, Macon, Ga.

T. E. Richert, ticket agent, Lehigh Valley Railroad. Headquarters, Allentown, Pa.

F. D. Royce, commercial agent, Wabash Railroad. Headquarters, Philadelphia.

J. M. Ryan, traveling freight agent, Southern Railway. Headquarters, Louisville, Ky.

C. J. Sayles, chief clerk, general traffic department, Wabash Railroad. Headquarters, St. Louis, Mo.

A. Schleicher, agent, Lehigh Valley Railroad. Headquarters, Pattenburg, N. J.

H. Sheedy, local freight and ticket agent, Spokane, Portland & Seattle Ry. Headquarters, Portland, Ore.

C. A. Shumate, traveling freight agent, Wabash Railroad. Headquarters, Moberly, Mo.

C. A. Smith, assistant general freight agent, Carolina, Clinchfield & Ohio Ry. Headquarters, Johnson City, Tenn.

E. H. Stockton, soliciting freight agent, Norfolk and Western Ry. Headquarters, Winston-Salem, N. C.

Oakley W. Swezey, agent, Lehigh Valley Railroad. Headquarters, Vienna, N. Y.

E. L. Throgmorton, commercial agent, Illinois Central R. R. Headquarters, Kansas City.

E. Tiffin, general western agent, Intercolonial Railway. Headquarters, Toronto, Canada.

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C. H. Todd, traveling freight and passenger agent, Western Maryland. Headquarters, Elkins, W. Va.

T. W. Trelford, Jr., commercial agent, International & Great Northern Ry. Headquarters, San Antonio, Texas.

G. M. Trickett, traveling passenger agent, Missouri Pacific Ry. Headquarters, Little Rock, Ark.

Frank A. Wadleigh, passenger traffic manager, Denver & Rio Grande. Headquarters, Denver, Colo.

William A. Wallace, traveling freight agent, Erie Railroad. Headquarters, Reading, Pa.

C. H. Webb, assistant general freight agent, South Texas and Louisiana Lines of the St. Louis & San Francisco R. R. Headquarters, Houston, Texas.

J. E. Whitney, contracting agent, Illinois Central. Headquarters, New York.

H. E. Williams, general agent, Western Maryland Ry. Headquarters, Baltimore, Md.

G. H. Winsor, general freight and passenger agent, in charge of traffic matters, San Antonio and Gulf. Headquarters, San Antonio, Texas.

Ray Wixom, agent, Lehigh Valley Railroad. Headquarters, Waterloo, N. Y.

Industrial.

R. S. Trumbull, agricultural agent, El Paso & Southwestern system and the Morenci Southern. Headquarters, El Paso, Texas.

Purchasing.

H. G. Cook, general storekeeper, Pacific system, Southern Pacific. Headquarters, San Francisco, Cal.

A. A. Goodchild, general storekeeper, lines east, Canadian Pacific. Headquarters, Ft. William, Ont.

E. Harty, general storekeeper, Southern Pacific. Headquarters, San Francisco, Cal.

A. J. Mello, stationery storekeeper, Southern Pacific. Headquarters, West Oakland, Cal.

F. K. Mays, purchasing agent, Atlanta, Birmingham and Atlantic Railroad. Headquarters, Atlanta, Ga.

H. C. Pearce, purchasing agent and general storekeeper, Seaboard Air Line. Headquarters, Norfolk, Va.

Thomas Spratt, assistant purchasing agent, Norfolk & Western Railway. Headquarters, Roanoke, Va.

I. L. Ward, storekeeper in charge of general stores, Southern Pacific. Headquarters, Sacramento, Cal.

Miscellaneous.

S. B. Fisher, chairman, valuation committee, Missouri, Kansas & Texas Ry.

John M. Gibbons, general advertising agent, Canadian Pacific Ry.

F. M. Gilbough, charge of real estate, Katy's Valuation Committee.

Justin W. Lester, chief accountant, Public Service Commission. Headquarters, Boston.

Charles C. Schnatterbeck, chief clerk of the Timber Preservation Department, Baltimore and Ohio.

J. C. Talbott, accountant, Katy's Valuation Committee.

Safety.

F. E. Blaser, general safety committee, Baltimore and Ohio—Cincinnati, Hamilton and Dayton system.

George Bradshaw, safety engineer, Grand Trunk Railway.

RESIGNATIONS.

Executive.

Charles H. S. Chlacks, first vice-president and director, Western Pacific Railway.

Norman McD. Crawford, president, Mahoning & Shenango Railway and Light Company.

Howard Elliott, director, the Burlington System.

J. H. Hustis, vice-president, Boston and Albany.

H. W. Sheridan, vice-president and general superintendent, Louisiana Lines, Southern Pacific Company.

R. P. Stevens, president, Lehigh Valley Transit Company.

Dever H. Warner, director, New York, New Haven and Hartford R. R.

Legal.

Wm. S. Opdyke, general counsel, Delaware and Hudson Co.

Accounting.

J. A. Shattuck, auditor, Texas State Railroad.

Engineering and Mechanical.

R. D. Boynton, signal supervisor, Chicago & Alton Railroad.

P. C. Connelly, general roadmaster, Colorado Lines of the Denver & Rio Grande Railroad.

M. E. Cowen, roadmaster, Alliance Division, Lake Shore and Michigan Southern Ry.

P. T. Dunlop, mechanical superintendent, Gulf, Colorado & Santa Fe Railway.

J. E. Hickey, master mechanic, Pere Marquette Railroad.

W. T. Leyden, master mechanic, Minneapolis & St. Louis R. R.

John McGreevey, roadmaster, first district, Oregon Short Line.

H. C. Pearce, general storekeeper, Pacific System, Southern Pacific Company.

E. J. Searles, district superintendent of motive power, Baltimore and Ohio Railroad.

C. G. Turner, master mechanic, Wilmington Division, Philadelphia, Baltimore & Washington Railroad.

Operation.

George E. Graham, assistant general superintendent, British Columbia Division, Canadian Pacific Railway.

G. L. Hickey, assistant superintendent, Montana Division, Oregon Short Line.

H. B. Holbert, general manager, Muscatine North and South Railway.

A. D. McCarthy, trainmaster, Grand Trunk Railway System.

A. R. Morris, superintendent of telegraph and telephone, Guayaquil and Quito Railroad.

H. W. Sheridan, general superintendent, Louisiana Western Railroad and Morgan's Louisiana & Texas R. R. & S. S. Co.

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Traffic.

W. B. Allen, superintendent of transportation, Chesapeake & Ohio, of Indiana.

C. D. Boyd, traveling passenger agent, Missouri Pacific-Iron Mountain.

J. A. Brown, assistant general freight agent, St. Louis, San Francisco & Texas Ry., Ft. Worth & Rio Grande Ry., Brownwood, North & South R. R. and the Paris and Great Northern R. R.

H. C. Bush, traffic manager, Colorado Midland Railway.

W. W. Croxton, general passenger agent, Norfolk Southern R. R.

C. W. Egan, general claim agent, General Safety Committee, Baltimore and Ohio Railroad.

F. W. Elder, division passenger agent, Chicago and Alton Railroad.

H. A. Fidler, division freight agent, Detroit, Toledo and Ironton.

H. P. Hewes, commercial agent, Illinois Central.

C. H. Jackson, general agent, Cleveland, Cincinnati, Chicago & St. Louis Ry.

I. M. Keller, traveling passenger agent, Missouri Pacific.

J. A. McWilliams, traveling freight agent, Southern Railway.

S. A. Martin, traveling freight agent, St. Louis Southwestern Railway.

R. N. Nash, assistant general freight agent, Atlantic Coast Lines.

James F. Slowey, commercial agent, Georgia Southern & Florida Railway.

L. H. Stephanson, commercial agent, Illinois Central R. R.

C. W. Strain, assistant general passenger agent, St. Louis, San Francisco & Texas Ry., Ft. Worth & Rio Grande Ry., Brownwood, North & South R. R., and the Paris and Great Northern R. R.

P. A. Sullivan, commercial agent, International & Great Northern Ry.

Miscellaneous.

W. T. Robson, general advertising agent, Canadian Pacific Railway.

C. C. Witt, engineer, utilities commission of Kansas.

Safety.

General Claim Agent Egan, General Safety Committee, Baltimore and Ohio-Cincinnati, Hamilton and Dayton.

OBITUARY.

Anthony N. Brady, chairman of the Board of Directors of the Brooklyn Rapid Transit Company, died in London, England, on July 22, at the age of 71. The directors of the Brooklyn Rapid Transit Company adopted a resolution relating to his death, which is in part as follows: "For seventeen years he has been actively concerned in the direction of the company's business. During all of that period he has shown unceasing interest in its growth and development, manifesting that interest not only in the devotion of service and talents to its affairs, but in his large investments in its securities. Never for an instant has his faith in its success or his loyalty to its welfare wavered."

Vernon H. Brown, former American manager of the Cunard Line, died in New York, on August 5th. As the chief representative of the Cunard Steamship Company in New York and the United States for close upon thirty years, Mr. Brown, who was in his eighty-first year, was one of the best known men in the city's commercial life and most intimately connected with its shipping business.

Appointed American agent of the Cunard in 1880 when he was in the prime of life, he had already a strongly established reputation for his practical knowledge of the seafaring industry. He was born in Boston, November 17, 1832, was apprenticed in boyhood to the clipper shipowning firm of Sampson & Taffen, then one of the largest maritime concerns in the United States, and on reaching his majority, with his father established the shipping firm of Vernon Brown & Co., of Boston.

Coming to New York he established the firm of Vernon H. Brown & Co., which continued in the shipping business until a few years ago.

Mr. Brown enjoyed an equally high reputation in kindred commercial and social circles. He was senior director of the Hanover National Bank, being also a director of the Seamen's Savings Fund and of the Atlantic Mutual Insurance Company. He was also one of the organizers and chairman of the finance committee of the Northern Insurance Company of New York, and was one of the United States trustees of the Royal Exchange Assurance Corporation of London, Eng., besides being a trustee in the Hanover Safe Deposit Co., the Panama Railroad Company and the Sterling Salt Company. He was also a member of the Union, Tennis & Racquet, New York Yacht and Richmond County clubs.

Arthur S. Hanson, general passenger agent of the Boston and Albany for many years, died on the evening of July 29th. Mr. Hanson was one of the veterans in the railroad business in New England and had a wide acquaintance throughout this community.

In railroad circles, Mr. Hanson was regarded as an expert in passenger traffic matters, and his advice and recommendations in all matters of this sort had been regarded as of the highest authority. Practically all his railroad experience has been with the Boston & Albany Railroad and as the head of its passenger department he had extensive dealings with all classes of people along the line of this road. Mr. Hanson had also a large circle of more personal friends.

He was born in Salem on December 31, 1851, of an old Salem family, and attended the public schools in that city. He afterwards went to St. Mark's School at Southboro and then spent three years in Boston in mercantile business. In 1872 he went to Chicago, where he was employed by the Illinois Central Railroad, and six years later, on December 1, 1878, he entered the employ of the Boston & Albany Railroad in the passenger department, with which he had been continuously associated from that date. He was made assistant general passenger agent on February 1, 1882, and general passenger agent December 1, 1884.

Alexander F. McMillan, chief clerk of the passenger traffic department of the New York Cen-

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tral Lines in Chicago, died August 9th, having been stricken with apoplexy on a Michigan Central train while on his way to Marshall, Mich.

Charles J. Robinson, former assistant paymaster of the Southern Pacific Company, died at his home in San Mateo, Cal., July 21st, aged 67 years.

John V. Smith, at one time president of the Alabama Railroad Commission and a member of the last State Legislature, is dead.

Edward A. Taft, manager of the express department of the New York, New Haven & Hartford, died on July 29th at his home in Boston. Mr. Taft was born in 1845, and served as captain's clerk on the gunboat "Cambridge" and the sloop of war "Tuscarora" in the Civil War. He began as clerk with the Merchant's Union Express Company in 1866, and was later made auditor of the New England Express Company, and in 1886 was made a member of the Board of Managers of the Erie Express, which later was merged with Wells, Fargo & Company. He later became a director and president of the Morris European & American Express Company, and a director and chairman of the board of the Manhattan Delivery Company.

Thomas R. Teillott, former superintendent of the Pittsburgh, New Castle & Lake Erie R. R., now a part of the Baltimore & Ohio R. R., died recently in Schenectady, N. Y.

LABOR.

Burlington Trainmen's Demands Referred to Arbitration Board.—Advices from Chicago the latter part of August, indicate that a strike affecting the trainmen of the Chicago, Burlington and Quincy Railroad, had been averted by Judge W. L. Chambers, of the National Board of Mediation and Conciliation. The questions involved will now be settled by submitting them to a board of arbitration, two of which will be chosen from each side, and these four will have fifteen days in which to choose the remaining two arbitrators, making the six necessary to hear the case. In the event of the failure of the four to select the two additional arbitrators, they will be appointed by Judge Chambers, acting as mediator. There were originally ninety-seven points in the revision of rules covering working periods. All but fifteen of these, however, have been agreed upon, but it was the settlement of these fifteen that threatened to involve the men in the strike. The men demanded an increase in wages ranging from 12 per cent to 20 per cent, depending upon the class of work. Up to the time of the appointment of the board of arbitration, the railroad rejected the demands on the ground that earnings did not warrant such advances.

Compromise on the Southern Pacific.—G. W. W. Hanger, another member of the National Board of Mediation and Conciliation, has been in San Francisco for the purpose of bringing about an adjustment of the difficulties existing between the Southern Pacific and its locomotive and tram crews. Mr. Hanger was able to effect a compromise that has satisfied all parties and averted the threatened strike. The main principle for which the employes contended, is conceded by the company. The men protested against a segregation of the steam line systems from the electric lines, extensively located in San Francisco and elsewhere. Under the terms of the agreement, the segregation plans will be abandoned.

An arbitration board has been appointed, to settle the question as to what constitutes electric street car service on the lines of the Southern Pacific Company. At the suggestion of E. E. Calvin, vice-president of the Southern Pacific, Commissioner Hanger on behalf of the people, appointed Max Thelan, of the California Railroad Commission, as a member of this board. Representing the employes will be M. E. Montgomery, assistant chief engineer of the Brotherhood of Locomotive Engineers, while W. R. Scott, general manager of the Southern Pacific, will attend on behalf of the railroads.

The railroad company contends that certain of its electric cars in Alameda County, which are operated under a street car franchise and stop at every crossing, should be run on a different basis from through suburban service stopping only at regular stations.

This triangular board is a striking illustration of the change in attitude toward strikes in the last few years. Its formation recognizes that the people are entitled to have something to say in transportation matters, and that the railroad company and the men both realize it. Coming from the railroad, the suggestion that the people's representative be included indicates closer co-operation between the two in the future.

Baltimore and Ohio's Machinists Strike Averted.—An agreement between machinists and officials of the Baltimore and Ohio has been signed as a result of the good offices in mediation of the Department of Labor. An adjustment of several points of differences was brought about and an agreement signed averting the threatened strike. John A. Moffit, of the Immigration Service in New York, acted as mediator for Secretary Wilson.

The agreement runs for one year, beginning September 1st. It provides for a nine-hour day, an increase in wages, from 35 to 36 cents an hour, better sanitary and safety conditions for the machine shop and locomotive employes, regulation of apprentices, and a minimum wage scale. The agreement is expected to end the troubles between the road and its machinists, which have continued since the strike of 1910. It is the first agreement signed since 1908.

Northern Pacific Machinists Receive Wage Increase.—Machinists and helpers on all lines of the Northern Pacific and Great Northern railroads have effected a compromise with road officials, and will not strike. Some time ago the workers took a strike vote, asking as an alternative that they be given an eight-hour day, a cent an hour increase in pay and modifications in rules regulating the methods of work. Duluth railroad men have been notified by heads of the machinists' organization in the Twin Cities that their demands, with the exception of the one covering an eight-hour day, have been granted. As a result of the new ruling, 43 cents an hour will be the minimum on Great Northern lines east of Minot, N. D., and 45 cents the minimum

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west of that point. Mandan, N. D., is the dividing line of the Northern Pacific.

Advice to Ignore Orders.—A clash between the Brotherhood of Railway Trainmen and general managers of all roads may result from a letter sent out by W. G. Lee, head of the employes' order. Mr. Lee, in substance, advises all trainmen to disregard orders of railway officers when such orders violate the schedules and agreements entered into by the two interests. Officers of roads who have received the circular say it means an interference with discipline which, if carried out, must relieve the officials of responsibility to the public.

For years railway officers have contended before wreck investigators and in other ways that the rules of the different railroad brotherhoods and their manner of interpretation often run counter to the orders of the officers and in this way there was insubordination, lack of discipline and danger to the public. The letter quotes the resolutions passed at the convention of the men and charges that railway officers misinterpret or violate articles in schedules made with the men.

Longshoremen Strike Terminated.—The strike of longshoremen on the Hoboken docks of the Hamburg-American Line has come to an end, and all of the men have returned to work, following the issuance of an ultimatum by the company that it would not discriminate in the employment of its men.

The company stated that it did not desire to discriminate, its policy being to treat the men fairly at all times, and to give each one an opportunity of employment. It refused to submit to any of the demands of the longshoremen, and asserted that in three weeks they would reinstate the brass-check system, but reserved the right to withdraw the checks from any individual or individuals whom they consider objectionable.

TRAFFIC.

Developments During August.—Railroads during the month of August handled considerably more freight than they did for the corresponding period in 1912. Towards the end of the month there appeared to be a slackening in certain lines, but not to any important extent. Notwithstanding the heavy movement, the car situation remained satisfactory, although there is fear expressed in some quarters that a considerable shortage will exist during the winter months, particularly should weather conditions become unusually severe. The one big unfavorable development for the month was the serious deterioration in the corn crop. The damage has been very general in Kansas and surrounding States, and it is reported that the loss could be scarcely exaggerated. It is estimated to be 400,000,000 bushels and upwards. Other crops in the main, however, are doing well, and while the railroads will lose from the decreased corn tonnage, increases along other lines may offset the loss. In spite of the passage of the tariff bill, the outlook for business is generally good, and liberal attendance of buyers is reported at various trade centers, with good purchases.

Foreign trade continues heavy, its highest record being reported both for July and for the fiscal year ending July 31st. While the imports for the seventh month fell slightly below those for a like month of 1912, the exports were so much larger by like comparison, as to make the grand total the largest ever recorded. On the Great Lakes, July showed a large increase of lake traffic, the tonnage passing through the Sault Ste. Marie for the month being 12,278,000 tons, against 10,781,000 for the same month of last year. All important items show a gain with grain in the lead.

In the East, shipments of anthracite coal from Pennsylvania in July, were nearly 800,000 tons less than those in July, 1912, and amounted to 5,487, 852 tons as against 6,285,153 tons last year. The entire shipments for the first seven months of the year, however, were over 40,000,000 tons, and it is probable that this year's production will exceed the high record of 1911, which, for the twelve months, was 69,954,299 tons.

Summer passenger traffic has been reported from all sections of the country as being unusually heavy, and likely to eclipse all previous records. It is also reported that indications point to an exceptionally heavy volume of colonists passage business during the fall months, and plans have already been made to provide for this expected increase in travel. Special fares will apply to points in California, Oregon, Washington, Utah, Colorado, Nevada, Montana, Idaho and British Columbia.

Latest reports as to trans-Atlantic passenger movements, show a new record. While the total of first-class passage eastbound, from January 1st to August 15th, was only seventy behind the total for the corresponding period of 1911, the second-class, eastbound total, was a new record, likewise the first and second-class westbound movement. The immigrant record for the year is far greater than ever before recorded.

Erie Installs Car Floats in Chicago.—The first line of car floats to be operated at Chicago, has been inaugurated, the Erie Railroad having established a service to down-town points. This service, which contemplates sending full cars of merchandise into the heart of the wholesale district, is expected to give the Erie a considerable advantage both in point of time and in point of service. The plan of the company is to divert full car shipments from the main line of the railroad in the yards at the south side of the city. For this purpose a spur line has been built to a float bridge where the cars will be placed on barges and towed on the river to their destination. Each barge will be capable of carrying eight freight cars.

New Parcel Post Rates.—On August 15th, further extensions of the parcel post system were inaugurated. These included an increase of the maximum weight to twenty pounds, and a reduction in rates on first zone deliveries. A further extension of the parcel post system is forecasted in a statement issued by the Postoffice Department. This statement says in part:

"The Postmaster-General and his committee are continuing to work from day to day for the purpose of analyzing further phases of the service, and keeping in touch with the operation of the changes already announced, with a view of further extending the usefulness of this service just as soon as the necessary investigations and experience indicate that this is advisable."

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DIVIDEND NOTICES.

AMERICAN CAR AND FOUNDRY COMPANY.

New York, September 3, 1913.

PREFERRED CAPITAL STOCK.
DIVIDEND NO. 58.

A dividend of one and three-quarters per cent (1¾%) on the Preferred Stock of this Company has this day been declared, payable Wednesday, October 1, 1913, to stockholders of record at the close of business Thursday, September 11, 1913.

Checks will be mailed by the Guaranty Trust Company of New York.

WM. M. HAGER, Secretary.
S. S. DELANO, Treasurer.

AMERICAN CAR AND FOUNDRY COMPANY.

New York, September 3, 1913.

COMMON CAPITAL STOCK.
DIVIDEND NO. 44.

A dividend of one-half per cent (½%) on the Common Stock of this Company has this day been declared, payable Wednesday, October 1, 1913, to stockholders of record at the close of business, Thursday, September 11, 1913.

Checks will be mailed by the Guaranty Trust Company of New York.

WM. M. HAGER, Secretary.
S. S. DELANO, Treasurer.

DIVIDEND NOTICE.

Philadelphia Electric Company, 419 Market Street,

Camden, N. J., August 12, 1913. The Board of Directors have this day declared a quarterly dividend of one and three-quarters (1¾) per cent (being 30.625 cents a share) upon the paid in capital of the Company, payable Monday, Sept. 15, 1913, to stockholders of record Aug. 20, 1913.

H. C. LUCAS, Treasurer.

ANNUAL MEETING.

UNION PACIFIC RAILROAD COMPANY.

ANNUAL MEETING.

165 Broadway, New York, N. Y., Aug. 27, 1913.

The annual meeting of the stockholders of Union Pacific Railroad Company will be held at its office at Salt Lake City, Utah, on **Tuesday, October 14, 1913,** at 12 o'clock noon, for the purpose of electing fifteen directors of the Company, and of transacting such other business as may legally come before the meeting.

For the purposes of the meeting, the books for the transfer of stock (both Preferred and Common) will be closed at 3 o'clock P. M., on **Monday, September 22, 1913,** and will be reopened at 10 o'clock A. M., on **Wednesday, October 15, 1913.**

ALEX. MILLAR,
Secretary.

The Edgell Company

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Designing : Engraving
Printing : Embossing

Statement for April, 1913, of the ownership, management, etc., of the RAILWAY WORLD, published monthly at Philadelphia, Pa., required by the Act of August 24th, 1912.

Editor, Edward G. Ward, Philadelphia, Pa.
Publisher, Railway World, Philadelphia, Pa.

STOCKHOLDERS.

E. Gaskin, Buffalo, N. Y.
M. A. Ward, Brooklyn, N. Y.
Chas. M. King, New York City.
Garrison M. King, New York City.
B. C. Tucker, Cleveland, Ohio.
C. C. McCain, New York City.
C. S. McCain, Maplewood, N. J.
W. J. Conners, Buffalo, N. Y.

BONDHOLDERS.

Harper & Bro. Co., Philadelphia.
W. B. Jenkins, New York.
J. F. Tucker Est., Chicago, Ill.
F. C. Howlett Est., Syracuse, N. Y.
H. C. Blye, New York.
R. W. Baxter, Seattle, Wash.
C. M. Heald, Buffalo, N. Y.
E. T. Douglass, Philadelphia.

Sworn to and subscribed before me this 17th day of July, 1913.

WALTER M. BARBER,
Notary Public.

(My commission expires February 21st, 1915.)

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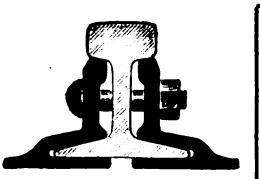

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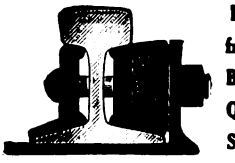

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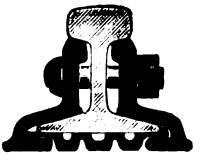

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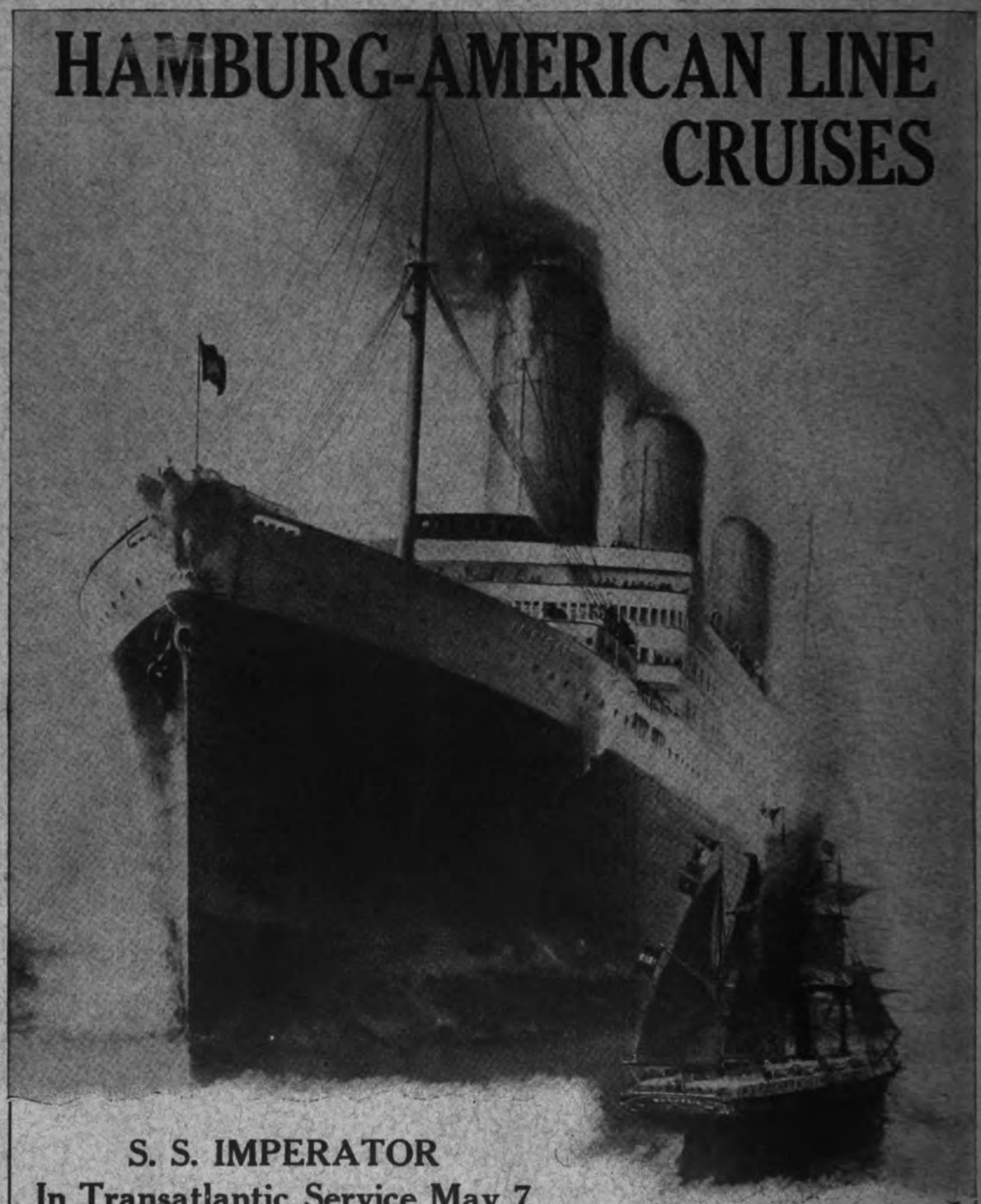

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Arbitrating the Eastern Trainmen's Wage Controversy

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Railway World

VOL. LVII. OCTOBER, 1913 No. 10

Important Developments in the Transportation Field

ARBITRATING THE EASTERN TRAINMEN'S WAGE CONTROVERSY

The arbitration of the Eastern trainmen's demands for greater pay and certain changes in working conditions began on September 12th, in New York at the Hotel Manhattan and continued through that month and the first half of October. Sessions began at 9.45 in the morning and continued until 12.30, were resumed at 1 P. M. and continued until 3.15. With the exception of Saturday and Sunday, meetings were held on every day. The Honorable Seth Low, by common consent, was made chairman of the Board of Arbitration and H. S. Milstead was elected secretary. Other members of the Board as recorded in last month's issue, were A. H. Smith, vice-president of the New York Central, W. W. Atterbury, vice-president of the Pennsylvania Railroad, Daniel L. Cease, editor of the *Railway Trainmen,* and Richard E. Sheppard, vice-president of the Order of Railway Conductors. The two former represented the railways and the two latter the employes. John H. Finley, president of the College of the City of New York, and Chairman Low, president of the National Civic Federation, represented the public on the Board.

During the course of the proceedings, the trainmen first presented their case in a general manner and were followed by the railroads. The trainmen's witnesses were then produced, were examined and cross-examined. Following the testimony by these witnesses, direct evidence was offered by the trainmen and by the railroads and a final summing up preceded the submitting of written briefs of each side to the other. Chairman Low in a public statement previous to the inauguration of the hearings, said:

"These proceedings are of great moment, as they will test for the first time the new law on arbitration passed by Congress, July 15, 1913. *It* will be shown if the new law is to work well in solving the railroad problems of the day."

Space does not permit of a general review of the great mass of testimony presented by both sides. The main basis of the trainmen's contention was that their responsibility and work had increased in the past few years and that the pay of Western trainmen was higher than theirs and that they were entitled to an equal amount. The testimony did not develop, however, so far as we are able to determine, that there had been any increase in work or responsibility since 1910, the year in which this class of employes had their salaries increased. As a matter of fact, the testimony of railroad officials clearly indicated that recent improvements had tended in many instances, rather to decrease, if not the responsibility, the actual labor and risk involved. It was also pointed out that trainmen at the present time were receiving an unusually large wage as compared with those employed in what might be termed similar capacity in other industries. The arguments made by the employes that railroading was a dangerous calling and that thousands of employes were killed every year, was largely discounted by the development of the fact that these casualties were due in a very large measure, to the men constantly taking chances, many of which were forbidden by the rules of the companies. The contention that traffic

J. G. WALBER.

Assistant to Vice-President, Baltimore and Ohio System, who was an important witness before Arbitration Board.

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E. R. HEWITT.
Assistant trainmaster of the Bessemer and Lake Erie, who testified that modern improvements and equipment had reduced hardships and the employes' responsibility.

growth in itself was responsible for more accidents, was not proven, as the increased safeguards which are constantly being thrown around the employe would more than offset such contention were the men ordinarily careful in the performance of their duties.

F. J. Warne, a statistician employed by the trainmen to prepare figures to support their contention of a necessity for wage increase, got way off the track by attempting to prove that sixteen men practically dominated the entire Eastern situation by means of interlocking directorates. He failed, however, to prove this interesting statement to be true and at best it had only a very indirect bearing on the controversy.

During the presentation of the trainmen's side of the controversy, William G. Lee, representing the trainmen, said that in 1910 a rate increase was negotiated with the Baltimore and Ohio, which was made the standard demand of the trainmen on all railroads in the Eastern territory. These rates are now in operation. Mr. Low asked:

"I do not understand why you should be endeavoring to gain a higher standard of pay when the standard you asked for in 1910, the Chicago standard, was granted at that time. I see no need of eliciting testimony and citing conditions during the years prior to 1910, if you got what you requested in 1910 on the basis of working and salary conditions then existing."

"We have never got what we asked for," said Lee. "Every settlement ever made with a railroad has been a compromise. The increases in 1910 were from 5 per cent to 15 per cent below our requests."

Mr. Lee in all frankness might have added that within recent years railway employes have entered these controversies with a practical understanding that if successful the award would be in the nature of a compromise. The question confronting the Board to-day is not whether the trainmen received all they demanded in 1910, but whether they are entitled to any increase at the present time on the basis of greater service or the ability of the carriers to pay higher wages.

Some of the reasons given for the necessity of the advance bordered on the absurd, such, for example, as that of a freight conductor of the Baltimore and Ohio who claimed substantially that a railroad man out of a job at the age of thirty-eight, found it next to impossible to get work elsewhere and was evidently, therefore entitled to the added protection of more pay. Why he should find himself out of work or why his condition differed from any other man finding himself out of work under similar conditions, was not enlarged upon.

In speaking of the contention of the trainmen that hardships are increasing in modern railway operation, E. R. Hewitt, assistant trainmaster in the employ of the Bessemer and Lake Erie, stated, in his opinion, that modern railroad improvements had greatly reduced hardships and modern equipment had greatly reduced the employe's responsibility. He made extended references to the work of various trainmen on his road to prove his contention.

The railroads presented a strong case against further increases at the present time. It was conclusively shown that operating costs had already reached a point where financial problems were becoming a matter of great embarrassment and that certainly no changes either in responsibility or quantity of work had occurred to justify an increase in wages since the recent one given to the trainmen generally. It was shown that the roads had within recent years, been more liberal than conditions justified, and that many wage increases had been artificial and forced upon the carriers by conditions over which they had little control.

It was clearly shown that the wages of railway labor were unusually high as compared with wages paid in other

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industries and that a further increase in salaries at the present time would be unfair and result rather in a decrease than an increase in efficiency. As to a comparison between the wages paid in the East and West, the evidence was of a very general character and failed to prove in a conclusive way the employes' contention. Mr. Low declared that the basis of the demands of the Eastern trainmen and conductors as he viewed it, was that they should be paid the same high rate of wages as those paid in Western territory for similar services and for practically similar conditions, but that, notwithstanding this fact, neither side had during the entire arbitration proceedings thus far made it clear whether this contention was based on the varying conditions of labor or comparatively greater responsibility on Eastern roads or attacked by the carriers on the ground that the intrinsic value of the employes' services were not as high as they are in Western territory.

Overtime work has apparently become one of the important factors in the controversy. The trainmen are demanding for overtime work, the pay per hour that they receive for regular working hours with one half of the hourly pay added. They endeavored to make it plain that they wish to penalize the railroads for making the men work long hours. On the other hand, the railroads insist that the trainmen want extra pay for overtime so they may increase their earnings by delaying their work until overtime occurs.

Comparing the Eastern and the Western situation, Mr. J. G. Walber, assistant to the third vice-president of the Baltimore and Ohio declared that on account of better working conditions the trainmen in the East preferred Eastern work and were really better compensated for their work than elsewhere.

As a glaring instance of the intolerant attitude taken by railway labor, a statement made by A. B. Garretson at the hearing on the morning of October 2d, is of interest. Mr. Garretson virtually asserted that the demands of the men had no relation to the earnings of the railroad and that the men were not necessarily interested in the question as to whether the roads were paying enterprises or not, save the respect of their ability to pay the wages demanded. Mr. Walber in the course of his testimony produced tables to show the arbitrators that the requests of the conductors alone in all classes of service involved an increase in wages of 21 per cent, or $6,421,657 more per annum based on costs of operation of the 42 roads in October, 1912. The freight flagmen's demands, he said, amounted to an increase of 28.2 per cent, or $3,795,215 more per annum; the passenger flagmen or rear brakemen were asking an increase of 25.9 per cent, amounting to $935,164 more per year and the regular brakemen, exclusive of extra men required in this class of labor under the various "full crew" laws, would receive an increase of 17.5 per cent, amounting to $6,283,844 more per year than they were now receiving.

The demands of the conductors and the trainmen for extra pay for overtime, Mr. Walber told the Board, would mean an additional $6,267,475, or 75 per cent, to financial obligations of the carriers every year, the monthly passenger minimum of $135, instead of $125, would add $263,675; local freight guarantee, $128,660. The net results of granting the changes in mileage and overtime rates asked by the conductors and trainmen would add $14,685,200 to the annual costs, witness stated, and the concessions in changes in rules as requested would mean an additional $3,290,487 per annum of itself.

Another noteworthy development in the hearing was the admission made by W. G. Lee that the rank and file of railroad employes throughout the United States were imbued with an insatiable desire to secure continued increases in wages which it is difficult if not impossible to stem.

The leader of the trainmen told the arbitrators that the employes in Western railroad territory, despite the increases granted within the past four years, have recently been clamoring for another wage movement and he expected that at a convention of the Western trainmen, to be held at Chicago on October 28 next, these new wage demands will afford the chief subject of discussion. Mr. Lee said that both he and Mr. Garretson would go to the Chicago convention with the hope of acting as a safety valve if they succeeded in closing up the pending proceedings in time.

Mr. Lee further declared that the firemen and engineers in Western territory are also now engaged in a movement for higher wages. "We do not know where the wage demands will stop, and we do not know of any way by which all the men will be satisfied, but I doubt if we ever can stop the men in their demands for more money," he concluded.

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Mr. Low at a meeting of the Board of October 9th said that in order to expedite business for the Arbitration Board he would make a statement which he thought might be useful. He said: "As I understand it the two large questions before the Board are:

"First. The men claim that they should receive the rate of pay ruling in the West without regard to any difference in conditions now existing. The railroads admit that the rates of pay are higher in the West, but they claim that the difference in conditions justifies the difference in rates.

"Second. The readjustment of pay for conductors and trainmen was made as recently as 1910. The men claim that notwithstanding the advance in the rate then made, the present demand for an increase of rate is justified. The railroads claim that nothing has occurred since 1910 to justify any further advances.

"Before either side closes its case, I hope that the men will develop, as fully as possible, why they think—if they do—that differences in condition between East and West either do not exist, or, if such conditions do exist, why they do not justify the differences in rate. And also what in their judgment has taken place since 1910 to justify a further increase in rate. And that the railroads will develop, as fully as possible, what are the differences of condition between the East and the West which make it reasonable to have lower rates in the East than in the West. And also why they believe nothing has transpired since 1910 to justify an increase of rate."

In their final brief, the Conference Committee of Railroad Managers, contended that the Board of Arbitration should not only refuse all of the demands of the men in the light of evidence, but should hand down an award creating a lower basic rate to passenger men on all through trains making few stops.

"We believe that we have shown by the statistics presented, the evidence produced and the arguments made," the managers declare, "that the conductors and trainmen are not entitled to any increase whatever at this time. In fact, the brakemen in both passenger and freight service affected by full crew laws, as well as yard brakemen, are now too liberally paid, and in the judgment of the railroads the basic rates for the services mentioned should, in all fairness, be reduced."

Elisha Lee, chairman of the conference committee of railroad managers, in the final brief for the carriers made a vigorous attack on the evidence submitted by the trainmen during the hearing. He declared that the burden of proof was upon the employes, and they had failed absolutely to prove that the present wages were not sufficiently compensatory for the services rendered, nor had the men shown that working conditions were unreasonable.

"We desire to call attention of this board to the fact that on the face of the evidence the strongest plea for an increase in rates appears to lie in a comparison of the basic rates in the East with those in the West," Mr. Lee continued. "We hold that it has not been proved that the Western rates are proper as applicable even to Western conditions, nor that Eastern conditions are such as to justify the adoption of Western rates even if they had been proved just in the West.

"Furthermore, it has been shown that, notwithstanding the higher basic rates in the West, the average cost to the railroads for conductors and trainmen's wages per train mile in the East is greater than in the West. In addition, it should be borne in mind that the close proximity of terminals in the East is such that the railroads are often unable to obtain a return in train miles equal to the wages paid, and for this reason the conductors and trainmen occupy an advantageous position in the Eastern territory not enjoyed by the men in the Western territory, by reason of the large amount of constructive mileage which they are paid.

"If the public, through this board, conclude, after learning all about the rates of pay these men receive, that they are already getting as much or more than any other railroad and industrial employes, then there is but one consistent course to pursue, and that is to deny the demands in toto."

In conclusion, the managers submit a list of twelve items which they ask that the arbitrators use as a basis for their award. In each of these they request that the specific demands from the trainmen for new basis of pay, such as monthly guarantees to passenger men, reclassification of services, time and a half for overtime, extra or double pay for doubleheader trains, etc., are not justified, and should, on the basis of the evidence submitted be denied.

FILING THE ADVANCED RATES

The railroads in the Eastern territory have about completed their enormous task of reconstructing their freight tariffs on the basis of a five per cent increase, and at the present writing it is hoped that practically all such advances will be on file with the Commission by the 15th of October. The task has

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been an unusually severe one, keeping traffic men and their assistants working overtime for many months, but it is the belief of the Eastern executives on account of the minority opinion of the Commission expressed at the time the advance in rates was first petitioned in the spring, that it would be better to put a definite proposition before that body in the form of tariffs showing the increases desired.

Reports from Washington indicate that the irrepressible Louis D. Brandeis of Boston has been retained by the Commission to represent the opponents of the five per cent increase. However, by the way shippers and business organizations are endorsing the movement, Mr. Brandeis, by the time the argument is on, may have acquired the distinction of standing largely alone in this capacity. As a preliminary move the tariffs will, of course, be suspended and a hearing on the general subject inaugurated. It is at this hearing that Mr. Brandeis is expected to shine, but we hardly believe he will again be able to force upon the public such bunkum as his greater efficiency plans which he sprung upon the last hearing of a similar character and by which he declared the railroads could save a million dollars a day. In an authorized public statement Commissioner Harlan gives the following reason for the retention of Mr. Brandeis:

"At the request of the Commission, I have been in communication with Louis D. Brandeis, of Boston, and he had consented to act as counsel in the rate advance case. This is in accordance with what has been the practice of the Commission for some years in cases of large importance and of wide general public interest. It must not be supposed, however, that the Commission has retained Mr. Brandeis to advance or support any special theory or preconceived notion of the Commission about the case.

"The carriers who have asked the rate advance will be represented at the hearing by some of the ablest attorneys in the country; they will fully develop the concrete proposition that the carriers are in need of more revenue. The individual shipper is ill-equipped to meet such a controversy because his interest is confined largely to the rates on his particular products; therefore, until the Commission takes steps to develop the other side of the broad question, it is likely to have a one-sided record upon which to dispose of the issue.

"In a case of such importance, we feel that we ought to have all the light possible. Manifestly, in such a case nothing short of a full record will give the Commission a satisfactory basis for whatever conclusions may be reached. It is with this thought in mind that Mr. Brandeis has been asked to aid the Commission in bringing out all the facts.

"His selection for this duty has no other significance, except as it may be regarded as a recognition by the Commission of his standing as a lawyer and of his well-understood ability in analyzing and broadly treating questions of large importance and public interest. Doubtless, certain protestants will have their own attorneys, but Mr. Brandeis will be the general channel through whom the views of the opposition to the proposed advance may be presented of record."

There can be no question but that the railroads stand a far better chance of success in procuring a favorable action by the Commission than they did at the previous hearing. Business to-day more generally recognizes the fact that without railroad prosperity, general business prosperity is impossible. They not only more fully appreciate the dangerously narrow margin between costs and revenues under which the railroads are now operating, but they are beginning to understand that unless this margin is permitted to expand, increased facilities to care for growing commercial demands cannot be provided, nor can a thoroughly efficient plant be maintained.

This can be readily understood when it is appreciated that railroad rates have been practically the only artificial exception to the general rise of prices which has been going on for a number of years. The railways, being large purchasers of supplies and among the greatest employers of labor, have felt these increases all along the line, and while straining every effort to offset them by a greater efficiency and therefore relatively smaller expenditure for operation, they have found themselves unable to stem the tide and have now reached a point where some of them actually face a forced deterioration of their property, unless greater revenues are provided for. Furthermore, it is becoming increasingly embarrassing to finance their fiscal obligations and the future of a number of roads is fraught with grave uncertainty.

There are two factors which would help these roads to recover lost ground and these factors are necessarily correlative, namely, higher rates and a continuation of general prosperity and free tonnage movements. The former is likely to bring about or continue the latter and therein lies the responsibility of the Commission, the influence of whose decision is likely to reach far beyond the welfare of the railways.

In discussing this general subject in its October issue, the *Engineering Magazine* has in part the following to say:

Two grounds have been taken by opponents of the advance of rates. One, adopted by the Inter-

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state Commerce Commission three years ago, was that figures of cost and revenue did not indicate the need of the increase. The other, urged by counsel for the shippers but not passed upon by the Commission, was that practicable correction of wastes in operation, practicable betterments in efficiency, would provide more than any alleged necessary enlargement of revenue; and that until this attainable efficiency was reached by the roads, no advance in rates should be permitted. The railways should not be allowed to recoup themselves from the public for the loss due to their own inefficient methods of conducting transportation.

As to the first of these considerations, a composite impression from current events is certainly that conditions have changed very much in the last three years, and that the margin of revenue must be less now than it was then.

As to the second argument, probably three years progress in the definition of the principles of efficiency, and in patient effort to convert the industrial world to their acceptance and practice, will convince even the most earnest apostle that men and institutions must grow more efficient as man grows more moral—by slow evolution, moving in cycles not of months—scarcely even of years—but rather of generations. Efficiency gains ground by individual conversion and spreads from the convert to his fellows. Railway men are probably no less ready than others to accept the propaganda and earn the promise held out so surely to those who achieve efficiency; but railways as a whole can no more be lifted suddenly to a plane higher than that occupied by industry at large, than carpenters as a class could be made intellectually and morally perfect while stone masons or pipe fitters remained distinctly human.

Much, therefore, as we may deplore a rising scale of prices because of the perplexities it brings us, much as we may disapprove anything resembling inflation, we seem to be confronted with conditions too fundamental to be settled by any power of regulation that can be exercised by a single commission. If, whatever its causes, the rise of money-equivalents for units of substance and service is a world-wide phenomenon, nothing but unfortunate and probably disastrous economic disturbance can come from artificially "pegging" one part of the circle when the whole circumference is irresistibly expanding.

No cause—least of all the cause of efficiency—can be advanced by denying to railways a standard of compensation for service commensurate with standards of compensation received by individuals and corporations elsewhere.

On October 15th, Daniel Willard, president of the Baltimore and Ohio Railroad and chairman of the Committee of Railroad Presidents, chosen by the Eastern railroads to present their petition to the Interstate Commerce Commission for an increase of freight rates, issued the following statement:

"The railroads, in the territory east of the Mississippi and north of the Ohio and Potomac rivers, to-day filed with the Interstate Commerce Commission revised tariffs covering freight rates in official classification territory involving an increase of approximately five per cent. The tariffs as filed are to take effect on November 15th.

"It is expected that the Interstate Commerce Commission will institute an inquiry and hearing with regard to these tariffs in the near future, when the railroads will present in detail to the Commission the reasons which made it necessary, in their opinion, to request the increase in rates.

"The gross earnings have shown a considerable increase since the last hearing in 1910, due to increased business handled. This increased business could not have been moved except for the additional tracks, terminal facilities and equipment provided. This has been done through the expenditures of large amounts of additional capital, which has greatly added to the charges the railroads must pay. This, and the greatly increased rates of pay, as well as the increase in other expenses and taxes, has seriously reduced the return on capital invested and so lessened the margin on capital as to render it difficult to see how investors can be induced to provide the capital that will be needed to keep the transportation facilities up with the requirements.

"It is a matter of public record that in no country in the world do the people make use of so much transportation per capita as in the United States, due, of course, to the great area of the country and to the fact that our domestic economy has been built up upon the theory that each part of the country should be made to raise the crop and develop the product most in keeping with its natural resources and then depend upon the transportation facilities offered to move the crops, the coal and the ore from the place where each can be most economically produced to the place where required by the ultimate consumer. Such an economic policy of course, makes it absolutely vital that transportation facilities should keep fully abreast with the productive capacity.

"Railroad rates have been practically stationary in the United States for a considerable period of time. The proposed increase is very moderate and will bear but lightly on any particular unit of traffic. If the railroads are to have the necessary funds with which to provide the transportation facilities absolutely required for the proper development of this country, this increase in rates is necessary, and as the commercial health of the United States is so inextricably interwoven with the soundness of its transportation system, it is hoped that this increase in rates will receive the support of that public whom it is the duty of the railroads to serve."

PROGRESSIVE POLICY FOR THE NEW HAVEN

Under the wise and vigorous policy of President Elliott and his Board of Directors, the New Haven has recently been making rapid progress towards eliminating those methods and conditions which have within the past year or two aroused so much criticism and public opposition. A notable development has been the election of President Hadley, of Yale University, to the Board of Directors. President Hadley is not only the head

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of a great New England university with a special interest in the New Haven by reason of its location, but he is a world-wide authority on railroad transportation, and his election to the board greatly strengthens that body and is an added assurance to the people of New England that every effort is being made to conduct the affairs of the company in a way which will meet with their approval.

In addition to the election of President Hadley, the Board of Directors have also accepted the resignations of Theodore N. Vail and Alexander Cochrane. These resignations are taken as an indication that one of the first steps which the Elliott regime will take in bringing about reforms desirable to the Federal authorities, is that of splitting up the old system of close and interlocking directorates with the Boston and Maine. Both Messrs. Vail and Cochrane are directors of the Boston and Maine and their resignation from the New Haven board is considered a step in the general plan of reorganization as acceptable to the Federal authorities. On October 22d, Mr. Elliott was elected chairman of the Board of Directors and James H. Hustis, president of the system.

For the purpose of complying as rapidly as possible with the recommendations of the Interstate Commerce Commission, the Board of Directors have provided for six special committees to investigate every condition mentioned in the Commission's report of June 20th. President Elliott issued the reply of the directors to the Commission, telling what steps had been taken so far towards complying with their directions. These include the separation of the Boston and Maine from that of the New Haven and the provisions for a separate official staff for the Ontario and Western. Action along similar lines will be taken as rapidly as possible with regard to the trolley and steamer lines, but the directors feel that the New Haven and Boston and Maine matters should receive first attention. President Elliott further asserts that all the changes recommended by the Commission are to be taken up as soon as the board can accomplish it.

The six committees named to carry into effect the Interstate Commerce Commission's recommendations are: One to investigate the Connecticut trolley situation, one to consider the Rhode Island trolley situation, a third to investigate the steamship situation, a fourth to investigate the relations of the New Haven and Boston and Maine, the fifth to consider the trolley situation in western Massachusetts and the sixth to consider the relations of the New Haven with its other subsidiary railroads.

PRESIDENT HADLEY,

of Yale University, who has been elected to the Board of Directors of the New Haven System.

After the meeting President Elliott made public a letter he had sent to Governor Foss, of Massachusetts in reply to the Governor's request that the road permit an inspection of its books, in view of the agitation over the New Haven's "general expenses" account.

Mr. Elliott said he would be glad to comply with the request for examination of the company's books, vouchers, etc., as soon as the Governor or the Massachusetts Public Service Commission desired.

A few days after replying to the Interstate Commerce Commission, President Elliott and his associates, T. Dewitt Cuyler and President Hadley, of Yale, journeyed to Washington for the purpose of conferring with the Attorney General on the general situation in New England. After a two-hour session, President Elliott, just before leaving, issued the following statement:

"We discussed the whole New England railroad situation with the Attorney General and Mr. Gregory. We took up on broad lines and considered the suggestions and recommendations of the Interstate Commerce Commission as made by Mr. Prouty. We explained the plan of the New England board to investigate with great care the steamship ownership, trolley ownership, Boston and Albany lease and Boston and Maine holdings.

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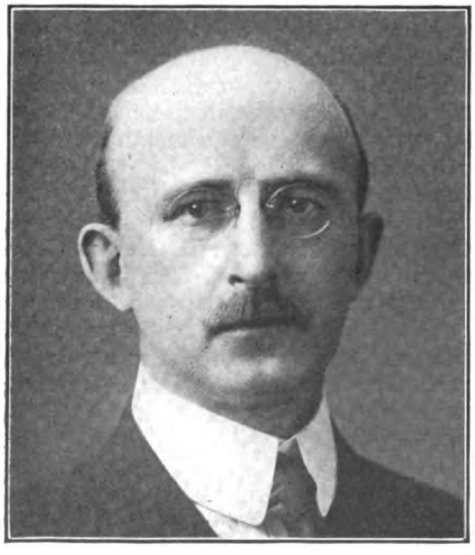
"The discussion was very full and frank on both sides and the New Haven directors will hurry their reports and recommendations as fast as they can and confer with the Department of Justice and Interstate Commerce Commission from time to time.

"No definite conclusions were reached and no commitments were made by either side, but it is thought that the conference will prove to have been helpful to the government and to the railroad in trying to bring about a solution of a difficult situation, with the least possible disturbance to New England and to the owners of the property."

Attorney General McReynolds did not add much to the statement made by President Elliott. He said that the latter and his associates did not offer any specific plan that would satisfy the Department of Justice or prevent a suit, but that the discussion was along general lines as to conditions and might lead to something more definite.

The Attorney General moreover declared that the New Haven directors were disposed to improve the situation and comply with the law, and, as he has done in discussing the matter before, indicated that he was willing to hear what they had to say. No arrangement has been made for any future conference.

In view of this interview with the Attorney General, the chairmen of the various committees of the directors who will conduct the investigation have been urged by the Executive Committee to make as much haste in bringing in their reports as possible. The final date set for all the reports with recommendations for reforms which it is hoped will meet with the approval of the Attorney General and thus avoid the filing of a dissolution suit by the Government, is December 1, but President Elliott later announced that the reports might be expected before that time.



FREDERICK J. MACLEOD.

Chairman of the Massachusetts Public Service Commission which have approved a $67,000,000 bond issue for the New Haven.

After a most thorough and searching investigation, the Public Service Commission of Massachusetts has approved the bond issue of $67,552,000. Stockholders have been notified that 65 per cent of the subscriptions must be paid on November 15th, and 35 per cent on January 15th, 1914. President Elliott declared that the approval by the Commission was highly gratifying to the management at this time. During the course of the hearings President Elliott gave the following reasons for the necessity of the issue:

"The large expenditures for steel equipment and for signals, to say nothing of the many other improvements, like stronger bridges for carrying the heavier engines that are needed to haul the steel cars, and of the innumerable additions and betterments that are needed all the time upon the various parts of the road, mean the furnishing of great sums of money.

"The company is now asking permission from the public authorities to issue certain debenture bonds for the purpose of financing itself and it hopes to obtain that permission and in that way receive $67,552,000 which will be used to pay off notes on bonds falling due within the next few months of $46,023,750, leaving the balance of $21,528,250 for the class of expenditures mentioned.

"If it cannot get the money it cannot do the necessary improvement work so that it would appear to be to the interest of the public as much as to the interest of the railroad to have the proposed plan go through promptly, even if some disagree on the question of what is the best way to raise the money.

"That is a question of judgment and the directors in making up their plan did what they thought was safest and wisest at the time in trying to protect the present and future of the property."

The report of the Interstate Commerce Commission on the North Haven wreck which occurred on September 2d, and which is more fully discussed in another section of this issue, severely criticises the management of the road as well as the men more directly involved, although, of course, it exonerates the new head of the system. The Commission's opinion may be summed up in the expression of "man failure" all along the line.

President Elliott has attacked this problem in his usually vigorous manner, one of the immediate results being a change in the rules governing the employment and pro-

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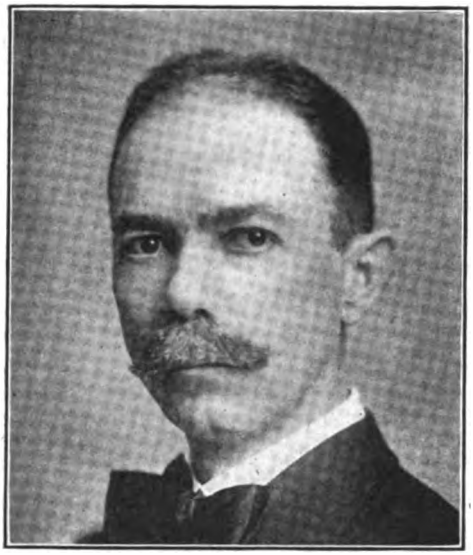


INTERSTATE COMMERCE COMMISSIONER MCCHORD. who prepared the Commission's report on the North Haven wreck.

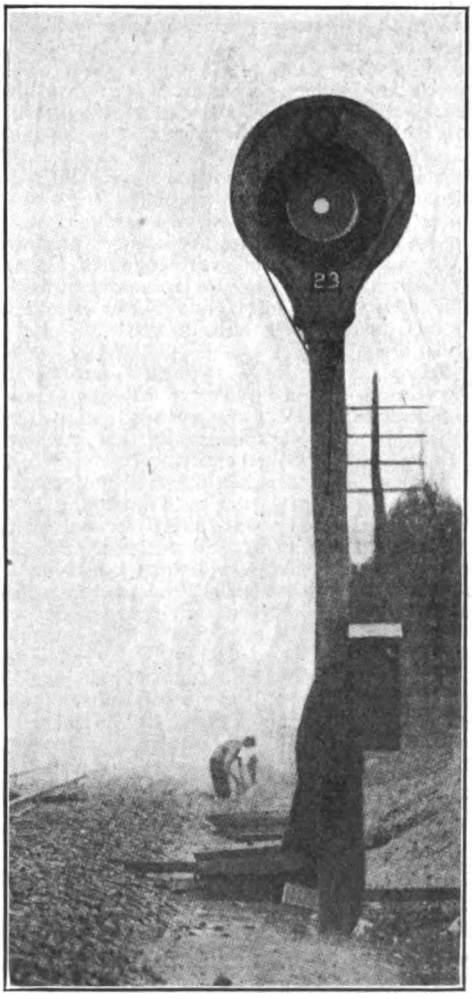
motion of engineers and firemen. These changes in rules have led to a certain amount of friction between the employes involved and the company, and threats of a strike have been freely made. The company feels, however, that it has both the National and State Governments as well as the general public behind it in its effort to promote more effective discipline in the operation of its trains, and it is not likely to give way. Governor Foss, of Massachusetts, has gone so far as to warn the railway labor of Massachusetts that should they strike on account of this effort on the part of the New Haven to procure greater discipline and safety, he would call a special session of the Legislature for the purpose of having them authorize such means as will protect the interests of the people and to pass a law that shall prohibit railroad strikes in that commonwealth. While the attitude of the Governor has been bitterly assailed by railway labor, it undoubtedly has had its moral effect and it is hardly to be expected that a strike will be ordered under existing conditions, as railway labor must appreciate that such action would at once alienate the sympathy of the public.

Regarding the general policy of the New Haven towards the public, this is interestingly set forth in a letter written by President Elliott to Governor Foss, in reply to several questions asked regarding the present attitude of the New Haven towards what Governor Foss termed "underground" methods. Mr. Elliott said in part:

"I believe that the people of Massachusetts and New England will find that it is the earnest desire of the directors and all of the officers to manage the railroad in a frank and straightforward manner and to attend strictly to the transportation business. On no other basis would I have been willing to come here and assume my present responsibilities, and this is so understood by the directors of this company, who are heartily in accord with this policy.

"I concur heartily with you that there should be the closest co-operation between the officers of the road and the public authorities, and that there should be open and above-board work in the discussions about any legislation, for or against the interests of the railroad company, between the representatives of the railroad and the members of the Legislature and the various governmental officers."

In spite of his recent strenuous activities, President Elliott found time on September 30th to deliver an address before the Bos-



THE BANJO SIGNAL OF THE NEW HAVEN WHICH IS TO BE RAPIDLY REPLACED BY THOSE OF THE SEMAPHORE TYPE.

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ton Chamber of Commerce on the general railway situation, with particular reference to the requirements of the New Haven. In his opinion a short route to the restoration of public confidence in the railroads of the country would be furnished by a positive declaration by Federal and State commissions that rates may be advanced. Several times throughout his speech Mr. Elliott touched upon the possibility of an advance in rates. He said in part:

"To have a safe, adequate and smooth running transportation machine in New England is just as important to her future growth as to have adequate banking facilities, adequate commercial organizations, and a sensible, sane and honest public opinion that will be reflected in a Government that will not be swayed by the whims, prejudice or fads of the moment. To perfect that transportation machine, to keep it ready to serve, to operate it safely and economically and in harmony with the public, is a very interesting and complicated problem, worthy of the best intellectual effort of any man. To solve it right will require much patience, work and money from those both in and out of the railroad service. I have come here to devote the best that is in me to this great service.

"If we are to continue to have privately owned railroads supervised and regulated by Governmental authority, and if we are to avoid ownership by the Government, the owners and users of the railroads must all work together. Personally, I do not believe in Governmental ownership in a country like the United States where our political methods are still in need of improvement.

"The policy of the Government—national and state—during the last twenty-five years seems to have been to decide rate questions in the great majority of cases in such a way that rates were rarely advanced and generally were reduced, and to introduce rules, regulations and methods that increased expenses. I am not contending at this time that this policy was and is wrong, or that control and restraint by governmental authorities should cease, although something could be said about that great question. I do, however, want to make a plea that, coupled with restraint and control, there should be protection to the owners of the securities.

"The commissions, both state and national, naturally feel the great pressure of the millions of users of the railroads for reduced rates and increased facilities. But if the rates continue to decline, or even remain on the present level, and if expenses are increased by higher wages and cost of materials and by the introduction of different appliances and facilities more rapidly than the roads can obtain money, then there is but one result for some of the railroads of the United States, and that is bankruptcy. This will naturally be preceded by a desperate effort on the part of the management to postpone that evil day as long as possible by stopping every improvement and betterment that can be stopped. I believe the commissioners, who have such great powers, realize their responsibility to the owners of the properties as well as to the users; and I hope earnestly that they will give practical evidence of their realization by permitting some advance in rates.

"Should the commissions—Federal and State—make a positive declaration that rates may be advanced so as to permit the properties to meet all of their obligations, pay a fair return to stockholders and leave a balance for improvements, they will do much for the entire country and particularly for New England. Such a declaration will at once inspire confidence and give to existing securities a better standing than they now have both here and in Europe; and will help to market new securities upon an interest basis more favorable than is now possible, because of the uneasiness in the minds of investors about the future net earnings of the railroads.

"The management of the New England lines wants to use the best financial talent it can find to help it in raising the money needed. It wishes to employ those bankers, no matter where they live, who can do the work. It would prefer to employ bankers in New York and Boston, who naturally want to help the development of the country and of the roads.

"New England can and will have the kind of railroad management and service to which she is entitled. Payment for this can be made in three ways—by some increase in rates; by the stockholders, who live in the country to be served advancing the money; by borrowing the money needed wherever it can be obtained. Probably a combination of all three plans is necessary at this time of crisis in the New England railroad situation.

"If and when the money needed is furnished the management proposes to spend it prudently in improving and perfecting properties now owned.

"The management proposes to confine its activities to the transportation business."

RAILWAY MAIL PAY DEVELOPMENTS

Ralph Peters, chairman of the Committee on Railway Mail Pay representing the principal Railways in the United States engaged in the transporting of mails, has forwarded the following letter to Postmaster-General Burleson in response to his public statement that he is "perfectly willing to consider any evidence the railroads have to show that they are not receiving adequate compensation for carrying the mails."

October 6, 1913.

Honorable A. S. Burleson,
Postmaster General, Washington, D. C.

My Dear Sir:

Under date of August 19th you advised us that you were giving careful consideration to the matter of proper compensation to the railroad companies for carrying the additional parcel post mail, and that you would inform us of the result as soon as a conclusion was reached. We gave you, under date of August 29th, additional information and argument in support of our position. As yet we have had no advice from you as to the result of your consideration of this question, although we have noted in the New York "Times" of October 1st, a

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telegram from Washington, reporting an interview with you concerning the appeal that our committee had made to you for better treatment of the railroads. In this interview you are reported as saying:

> "I am perfectly willing to be convinced that the railroads are being treated unfairly if they can produce convincing evidence. But it is a surprising thing to me that if the railroads believe they are losing money in their mail-carrying service they should be constantly seeking new mail-carrying business."

I regret very much indeed that we have not been able so far to impress upon you the honesty and sincerity of our position, and the seriousness of the situation arising from the establishment of the parcel post. It is probable that you are not familiar with House Document No. 105, being a letter and report of former Postmaster General Hitchcock on the subject of the cost of handling the mails by the railroads, nor with the reply thereto made by the railroads. These documents contain a most complete analysis of the cost, with all the information relating to the subject it was possible to furnish, both on the part of the railroads and the Post Office Department. The analysis of this information, when honestly and fairly made, shows that the railroads are very much underpaid for carrying the mails. The analysis as printed in Document No. 105 attempted to show that the railroads were overpaid, a conclusion that was reached as the result of using an unusual method for the apportionment of railroad expenses, and a method which has been characterized by the Interstate Commerce Commission on page 148, in Document No. 4198, in the matter of Express Rates, Practices, etc., as follows:

> "This contention, however, is based upon theories and assumptions to which the record gives no support, such as the adoption of an arbitrary and theoretical basis for the apportionment of railroad expenses between passenger operations and freight operations, and the further adoption of a like basis for the allotment of passenger train expenses between passenger service, baggage service, express service, and mail service."

This expression of the Interstate Commerce Commission was brought out as the result of the express companies using the method that was adopted by the former Postmaster General in Document No. 105 in apportioning expenses, to show that neither the express companies, nor the railroads, could earn a return upon their property with the proposed reduction in express rates. This argument on the part of the express companies was dismissed by the Interstate Commerce Commission with the above quotation.

Furthermore, the former Postmaster General, in Document No. 105, absolutely distorted the facts and produced false results by taking from the car foot miles belonging under the mails and transferring to the passenger car foot miles the mileage made by dead-head mail cars, storage cars, and cars used in the mail service in one direction and returned empty in the opposite direction.

All of these facts have been brought out in the hearings before the Joint Congressional Committee now investigating the subject. The present Second Assistant Postmaster General admitted these facts, and further admitted that in the statements contained in Document No. 105 the Department had made no allowance to the railroads for a fair return on the property used in connection with the handling of the mails, and in the event that such an allowance should be made, it would, beyond a doubt, show that the railroads were very much underpaid.

The Committee on Railway Mail Pay has absolutely refuted the reliability of Document No. 105 in the testimony presented before the Joint Congressional Committee, showing that with the facts brought out in the investigation reported in that document, the railroads were underpaid in 1909 at least $15,000,000 a year for the services performed by them in transporting and handling the mails and employes of the Post Office Department.

I enclose herewith a copy of our pamphlet entitled "Mail Carrying Railways Underpaid," being an analysis and refutation of House Document No. 105. I sincerely trust that you will find the time to look into the matter of the preparation and presentation of Document No. 105, and will also favor us by reading our pamphlet in criticism of it.

Now, if the railroads were underpaid in 1909, it cannot possibly be said that we are amply compensated for the service performed in the handling of the mails at the present time, when the mails include the great additional weight of the parcel post, still further enlarged by your order increasing the weight limit in the first two zones. No more convincing evidence is needed than the fact that the weight of several hundred million parcels a year has been added to a service that was already inadequately paid for.

Since 1909, the operating expenses of the railroads have been greatly increased by the increased cost of labor and material, by increased expenses arising from laws and regulations adopted by Congress, by the various State Legislatures, and the Interstate Commerce and State Public Service Commissions. Postal cars must be built of steel and equipped with all modern conveniences for the comfort of the postal clerks. Full crew laws, Hours of Service laws, all have added to the expenses. In addition to this the Corporation Tax law has further added to the burdens of the railroads. Yet no effort has been made on the part of the Post Office Department to help the railroads to get fair play in the matter of compensation for the great service performed by them in handling the mails.

You state, "It is a surprising thing that if the railroads believe they are losing money in their mail-carrying service, they should be constantly seeking new mail-carrying business." This statement cannot possibly be correct so far as the majority of the railroads is concerned. It may be the case with a few of the roads that thus hope to get more gross revenue without greatly increasing their expenses, and who anticipate better treatment from the Government in the final settlement of this matter. The large majoriy of the railroads would gladly discontinue the handling of the mails if it were possible to do so.

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We sincerely hope that you will take the time to read the testimony that has been presented to the Joint Congressional Committee relating to this whole subject. We are sure that if you would do so, you would very promptly realize that the railroads have produced most convincing evidence that they have been most unfairly treated during the last twelve years, having suffered during that time many reductions in pay, with a constant increase in the work to be performed.

I enclose several articles from prominent New York papers, written by men who have read the testimony that has been presented to the Joint Congressional Committee, and who have evidently been convinced that the railroads have not been properly treated.

Appreciating your open-mindedness in this matter, and your expressed desire to give us fair treatment, we again beg leave to express the hope that you will read the testimony that has been presented, and will at an early date, give us a reply to our recommendations as promised in your letter of August 19th.

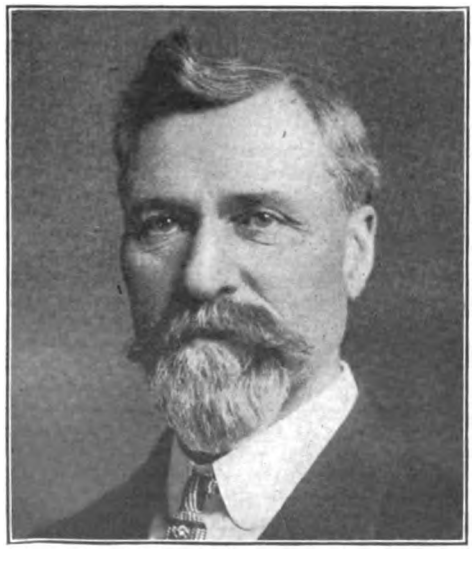
Again assuring you of our earnest desire to co-operate with your department in developing and improving this great branch of the public service, I have the honor to be,

Very respectfully yours,

RALPH PETERS,
Chairman.

PHYSICAL VALUATION

The Interstate Commerce Commission has created an advisory committee of five members to occupy an intermediate position between the technical board of engineers in charge of railway valuation and the Commission itself. Four of the members of this committee



CHARLES F. STAPLES,
of the Minnesota Railroad Commission.

EDWARD W. BEMIS,
Engineer of the City of Chicago.

are Charles F. Staples, Railroad Commissioner of Minnesota; City Engineer Bemis, of Chicago; Henry C. Adams, of the University of Michigan and formerly statistician of the Commission, and W. C. Williams, an engineer of Virginia.

It has been asserted in various quarters that the railroads have filed vigorous protests with the Commission against the enormous cost it will entail to make the physical valuation of the roads. This, it is understood, does not represent the general attitude of railroad officials on this question. While a large number of them consider that the whole scheme is utterly impracticable and that the results obtained will serve no practical purpose, they appreciate that there is nothing left for them to do but to co-operate in every way possible with the Commission in carrying out the instructions of Congress. Every effort will of course be made to carry on this work along the most economical lines, and for this reason the roads have suggested to the Commission that they be permitted to file tracings of their original maps instead of making entirely new ones. It is unofficially reported that the Commission feels that considerable merit rests in this suggestion, as the tracings would be as accurate as an original map in that the surveys are nearly always a matter of permanent record. It has not been officially reported as yet, however, whether the Commission will permit the roads to take this action as the question of authenticity

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with regard to such tracings will have to be carefully considered.

Considering the general question of physical valuation, the following editorial from a recent issue of the Philadelphia *Public Ledger* is illuminating:

"If the 20,000,000 men of age in the United States were asked whether they would pay a dollar each to know the physical value of the railways of the country the vote would be overwhelmingly against the proposition. Not one in a hundred would part with his dollar for this knowledge. The wise know the valuation would not be finished before an entirely new set of conditions would exist and a new necessity would arise for determining a new total.

"Yet that is just what the physical valuation of railroad property means. No one can tell what it will cost; certainly $20,000,000 or more, which means an average of one dollar for each of the 20,000,000 men of voting age. This illustrates the curious tendency of the new extravagance which may eventually ruin the finances of the country.

"The Interstate Commerce Commission at present has far more than it can attend to with reasonable promptness. Its work is piled up; its reports are delayed; it has a wilderness of activities that tax human ingenuity. In the circumstances the Commissioners have done most remarkable work. Yet they cannot keep step with the new responsibilities that politicians and congressmen seem disposed to thrust upon them. There are over 250,000 miles of railroad in the country. Under the plan five main engineers will have charge of a district which will comprise practically 50,000 miles of railway. The organization will include squads of five under an engineer, and a squad must make an actual survey of the railroad property to the counting and the valuation of each separate tie and every other detail. At best a squad is supposed to view about 2½ miles a day. This conveys some idea of the enormous work entered upon. Absence of accurate knowledge was displayed when Congress was disposed to grant to the Interstate Commerce Commission more money than it could possibly spend in the preliminary work, and it was due to the Interstate Commerce Commission that the first appropriation may be held to $300,000. This is but a beginning; the millions will follow later.

"Various States have tried the valuation of railways and in every case the results have not been satisfactory. The purpose, of course, is evident. It is to make the railroads pay a larger share of taxation and also to search out evils in railway finance and capitalization. If it could all be done promptly and properly there might be no criticism, even of the cost, but we are entering upon the expenditure of $20,000,000 without knowing how long it will take, with a very positive doubt as to the real value of the work when completed.

"In the overhauling of taxation, which must come in the course of time, there must be a calculation of benefits just as there is in any prudent business. Possibly the $20,000,000 which we are going to spend in getting totals which will be old before they reach us may be worth while as an object lesson. We buy our folly as well as our wisdom."

COMMERCE COURT ABOLISHED

In spite of a sweeping reversal of public opinion in favor of the retention of the Commerce Court and an apparently friendly attitude towards it by both the Interstate Commerce Commission and the Department of Justice, Congress abolished it on October 4th. This was accomplished by the passage of the urgent deficiency appropriation bill to which was attached the House provision abolishing this court. Before the final passage of the measure, however, and after a spirited contest, an amendment was adopted providing that the Commerce Court judges should continue in office as additional circuit judges, but abolishing their positions whenever the present occupants resigned or retired. The part of the urgent deficiency appropriation bill referring to the abolishment of the Commerce Court reads as follows:

"No interlocutory injunction suspending or restraining the enforcement, operation, or execution of, or setting aside, in whole or in part, any order made or entered by the Interstate Commerce Commission shall be issued or granted by any district court of the United States, or by any judge thereof, or by any circuit judge acting as a district judge, unless the application for the same shall be presented to a circuit or district judge, and shall be heard and determined by three judges, of whom at least one shall be a circuit judge, and unless a majority of said three judges shall concur in granting such application.

"Provided that if of opinion that irreparable loss or damage would result to the complainant unless a temporary restraining order is granted any justice of the Supreme Court, or any circuit or district judge, may grant such temporary restraining order at any time before such hearing and determination of the application for an interlocutory injunction, but such temporary restraining order shall remain in force only until the hearing and determination of the application for an interlocutory injunction upon notice.

"The Commerce Court is abolished after December 31st, next. All cases pending in the Commerce Court at the date of the passage of this act shall be deemed pending in and be transferred forthwith to said district courts, including cases which may previously have been submitted to that court for final decree, and all cases wherein injunction or other orders or decrees mandatory or otherwise have been directed or entered prior to the abolition of the said court shall be transferred forthwith to said district courts which shall have jurisdiction to proceed therewith and to enforce said injunctions, orders, or decrees. Each of said cases and all the records, papers and proceedings shall be transferred to the district court wherein it might have been filed at the time it was filed in the Commerce Court if this act had then been in effect.

"All administrative books, dockets, files and all papers of the Commerce Court not trans-

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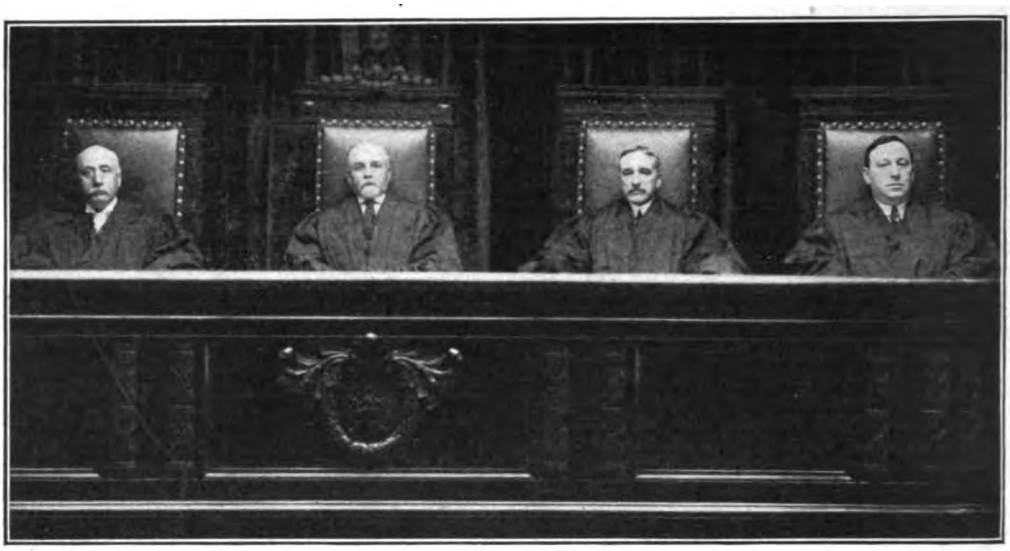

THE COMMERCE COURT AS CONSTITUTED WHEN ABOLISHED.

JOHN E. CARLAND MARTIN A. KNAPP W. E. HUNT JULIAN MACK

ferred as part of the record of any particular case shall be lodged in the Department of Justice."

In view of the fact of the strong endorsements which the Commerce Court has been receiving within the last few months from business organizations and prominent men in all sections of the country, the action of Congress in abolishing this tribunal is hard to understand. The court was gaining in favor among those who appreciated the value of its work and the important part it played in the simplification of railway litigation, and it had been even strongly hinted that President Wilson was in favor of its retention. All this has apparently, however, had no effect upon Congress, who is presenting an almost daily spectacle of a National legislative body working in direct opposition to the majority will of the American people.

EXPRESS COMPANIES ACCEPT COMMISSION'S RULING

It is unofficially reported that the express companies will not contest the order of the Interstate Commerce Commission effective October 15th, entailing a reduction of their present schedules by between 16 and 25 per cent. It is understood that the companies have practically agred upon the form of acceptance of the Commission's orders and that a formal request is to be made for a postponement in order that more time may be allowed in which to prepare a new schedule. Under the Commission's ruling the new order of rates is to remain effective for a period of two years. While both the express companies and the shippers are bound in a way by the order, either will have the opportunity to appeal from the new rates if, after reasonable time, it is shown that they are unfair.

In discussing the future of the parcel post, David J. Lewis, representative in Congress from Maryland, recently had the following to say:

Postmaster General Burleson has caused several improvements to be made, and will doubtless shortly make another by admitting books to the parcel post. The one of greatest importance, however, was the recent order raising the weight limit to twenty pounds and reducing the pound rates from three and four cents a pound in the 50 and 150 mile zones to one cent a pound with a charge of five cents on the first pound, as also from a cent a pound to a half-cent in the local and rural delivery zone.

The average journey of an express shipment has been 200 miles. The 150 miles air-line parcel post, at a cent a pound, has a reach by rail of as high as 250 miles. Since this new rate averages from one-fifth to but two-fifths of the express rates on packages weighing from one to twenty pounds, the post will stand to carry all express shipments up to that limit of weight and distance. About 30 per cent of all the revenue and 34 per cent of the number of shipments by express are included in shipments of nineteen pounds and less.

But the 20-pound limit was only a "first bite at the cherry" intended to try out the postal machine. The next step will be to extend this weight limit and rationalize the rates for the

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other zones. On the 300-mile zone the pound rate is now five cents—when it is conceded that a pound rate of two cents will carry a half-cent-a-pound profit to the Post Office Department. This step taken, it only remains to do what Postmaster General Burleson and Chairman Clark, of the Interstate Commerce Commission declared must come to pass, namely, "raise the weight limit to 100 pounds," which would operate to absorb 90 per cent of the entire express business.

Congressman Lewis, of course, fails to state that the success of the Postoffice Department along these lines has been due in a large degree to the efficiency of the railways and that in fact the Department itself is but one factor in the actual transaction. Furthermore, he also neglects to say that any financial success so far registered, is largely due to the fact that the Department is arbitrarily forcing the railroads to perform a service for which no adequate compensation has been provided. The Postoffice Department, notwithstanding the brag of Congressman Lewis, has never shown any marked degree of efficiency in the performance of its public functions and in fact it is well known that wasteful methods have for years characterized the system. Congressman Lewis, of course, talks for political effect, but his brutal method of disposing of a great and useful industry and of destroying millions of dollars of invested capital, will not meet with the approval of fair minded people.

It is hardly necessary to admit that the express companies have received a body blow through the extension of the parcel post and the lowering of express rates, but the men behind this vast industry are, in our estimation far more efficient than those who are promoting the parcel post, and while the latter have the powerful support of the Government back of their activities, we believe that the express companies will win out and demonstrate their usefulness in such an emphatic manner as to retain at least a good part of the patronage which has been theirs for many years.

The parcel post at the present time, is being operated with utter disregard to the fair treatment of the great industry upon which it is dependent for success. When the railroads are receiving a fairer compensation for the performance of this duty, a comparison between the effectiveness of the parcel post service and that offered by the express companies can be more intelligently made.

CONGRESSMAN DAVID J. LEWIS OF MARYLAND.

AMERICAN RAILWAY SAFETY ASSOCIATION

The movement for greater safety has at least crystallized into what might be termed a national organization, the nucleus of which was formed at a meeting held in Chicago on the 23d of September when members of the leading railroads of the United States gathered in that city and adopted methods whereby they expect their organization, known as The American Railway Safety Association, to become an active factor in the safer operation of American railways.

Under the scheme approved by the organization, suggestions made by railroad officials and employes on how to avoid accidents will be embodied in pamphlets and sent broadcast to the various safety committees of the country's railways.

The object of the Association as given out by O. F. Shedd, its temporary secretary, is to advance the interests of the safety movement by:

Affording members an opportunity of conferring and co-operating with each other and thereby facilitate the interchange among members of the best and most successful methods for advancing the work of the safety movement and for realizing its benefits and possibilities.

Instilling the idea of safety into the public mind and creating a sentiment which will result in the enactment and enforcement of laws prohibiting trespass on the tracks and trains of steam railways, with its consequent loss of life and injuries to persons.

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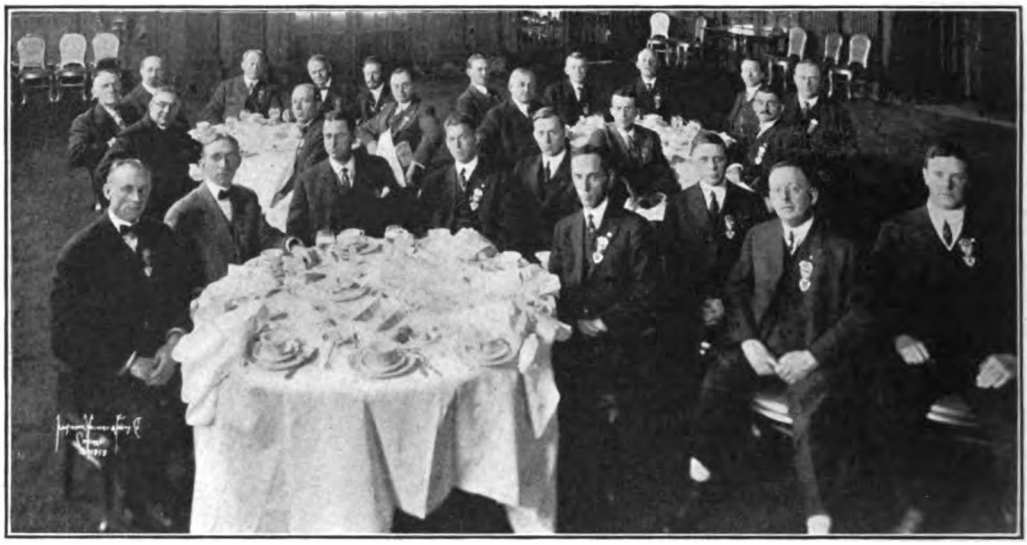


THE FIRST ANNUAL MEETING AND BANQUET OF THE AMERICAN RAILWAY SAFETY ASSOCIATION HELD IN CHICAGO ON SEPTEMBER 23.

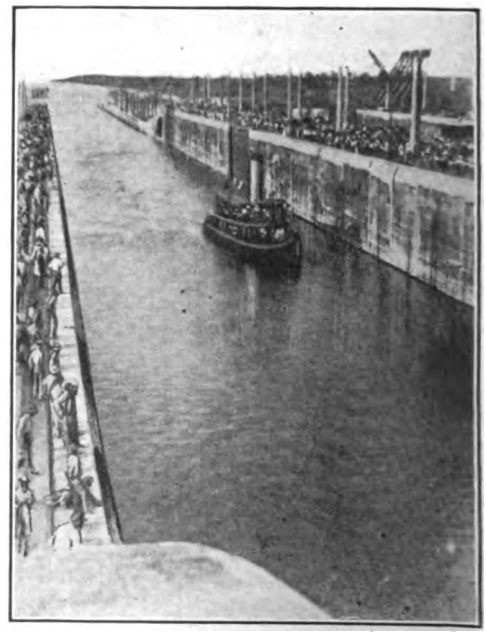
A. W. Smallen, of the Chicago, Milwaukee and St. Paul Railway, temporary president of the Association, presided at the September meeting. It was decided to withhold the election of permanent officers at the request of the American Railways Association, which, it is understood, wishes to cooperate in the formation of the permanent organization.

Before the meeting adjourned the following committee was appointed to represent the Association at the National Council for Industrial Safety in session in New York: M. A. Dow, New York Central Lines; W. C. Wilson, Delaware, Lackawanna and Western; J. N. Guild, Union Pacific, and R. C. Richards, Chicago and North Western Railway.

The Association did not complete organization plans, and will meet in December for that purpose. Various topics of interest to safety men were taken up, among them discussion of the basis upon which the different roads should compile their accident rate lists. The members inspected the safety car of the New York Central lines, which was standing at the La Salle Street Station, under the supervision of M. A. Dow. The temporary officers will remain in office until after the next meeting of the Association.

FIRST STEAMER IN PANAMA CANAL

The two illustrations herewith presented are of unusual interest in that they show the first boat entering the Panama Canal from the Atlantic side. As the last charge of dynamite which let the waters of the Caribbean into the lock was fired this little steam-



CROWDS WATCHING FIRST STEAMER ENTERING LOCK OF PANAMA CANAL.

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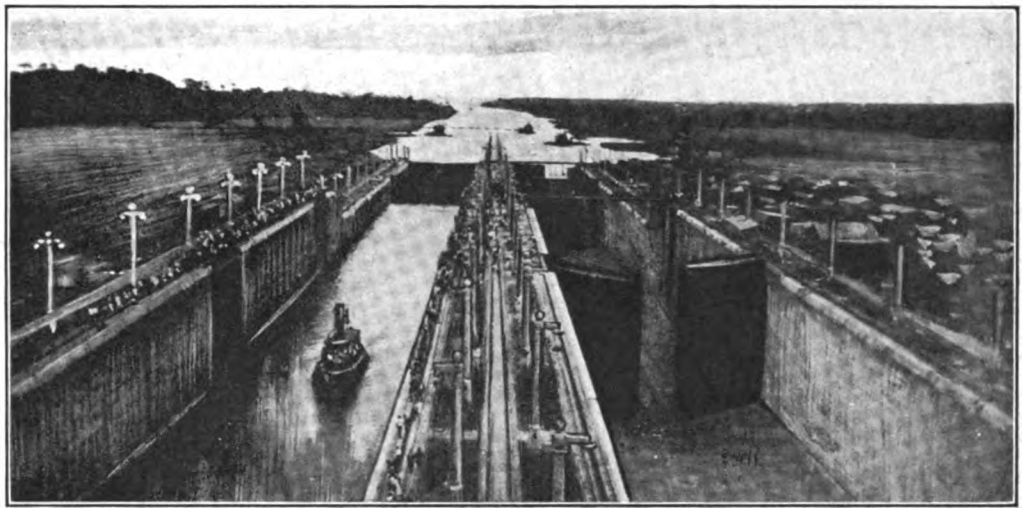

SOME IDEA OF THE ENORMOUS SIZE OF THE LOCKS IS HERE INDICATED.

er rode into the finished locks. As indicated by the photograph, hundreds of workmen lined the banks of the Canal and cheered lustily as the boat entered the locks. From Lemon Bay to Gatun Lake is five miles. The Canal at this point was hewn out of solid rock. The mean distance from the breakwater on the Caribbean Sea to the town of Gatun on Gatun Lake is probably twenty miles. The Canal at the point where the picture was taken is more than one hundred feet wide. Limon Bay is shown in the background. Government officials and Canal Zone dignitaries were on board the steamer.

PUBLIC STATEMENTS BY PROMINENT OFFICIALS

There is a decided conservatism evidenced in the public expressions of prominent officials recently with regard to the future of railroad tonnage. While evidently willing to appear as optimistic as possible concerning future business, conditions at the present time appear so uncertain that officials who are familiar with the situation are not willing to hazard a prophecy of an unlimited continuation of the good times which have been characteritsic of the past few years.

W. A. Gardner, president of the Chicago and North Western, says:

"We expect to have the same or larger gross earnings the balance of this calendar year than we did last year. Our general business also promises well. After January 1st it is somewhat speculative as to the volume of business."

W. A. Garrett, vice-president of the Chicago Great Western, expects a first class grain movement:

"The outlook for crops is splendid, and the general trend of business should be in the same direction."

L. E. Johnson, president of the Norfolk and Western, looks for favorable business for the remainder of the calendar year, but after January 1 expects a marked reduction, due to uncertainty over results of the tariff bill, the income tax bill, and currency bill.

B. F. Bush, president of the Missouri Pacific, Denver and Rio Grande, and Western Pacific railroads:

"With the uncertainty still existing as to the outcome of the corn and cotton crops, though the latter at the present writing promises a very good yield, and the unsettled feeling of merchants and manufacturers over the pending tariff and currency legislation we cannot at this time predict with any degree of surety business conditions for the later months of the year. On the whole, however, we look for a fair business, and hope to make up by increases in other commodities any shrinkage there may be in the corn movement."

Edward Pennington, president of the Soo Line, looks for a prosperous business in the Northwest. He believes that there is nothing to hamper the continuance of good business. Fairfax Harrison, president of the Chicago, Indianapolis and Louisville, says that railroad revenues are going to be large for the remainder of the current calendar year.

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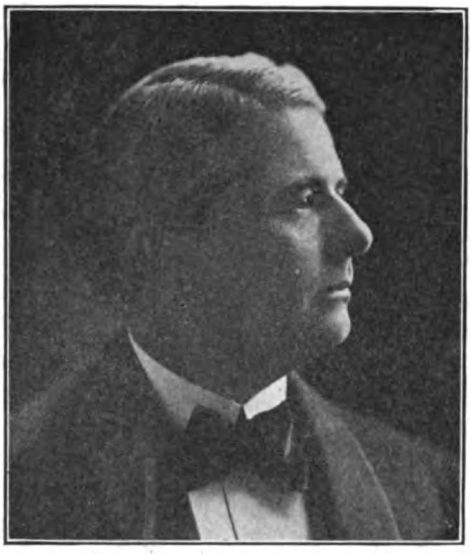

CARL R. GRAY.
President of the Great Northern.

E. P. Ripley, president of the Atchison:

"On the whole railroad prospects are fair, except for drastic and unintelligent, legislative, Congressional and official acts. There is nothing the matter with us but too much politics."

C. E. Schaff, president of Missouri, Kansas and Texas says:

"I look for a large decrease in the movement of traffic during this fiscal year. We may perhaps be able to make reasonable returns for the balance of the calendar year, but after January 1st, I look for a very light traffic throughout the Southwest."

Carl R. Gray, president of the Great Northern, expects business during the remainder of this calendar year to be fully as good as for the same period in 1912.

A. H. Mohler, president of the Union Pacific and Oregon Short Line, says:

"It looks to me as if we are having a recession of business from which we will not recover in a few months. Political and financial disturbances always produce recession instead of stimulation."

F. A. Delano, receiver of the Wabash Railroad, expects business for the remainder of the year to be about on the same basis as last year. He thinks crop losses and gains will about balance each other:

"Business after January 1 will depend on tariff and currency bills," he says. "If President Wilson succeeds as well as I hope and believe he will, I think there will be a decided improvement in business when these important measures have been passed."

In a recent address before the roadmasters and maintenance of way convention held at Chicago, W. L. Park, vice-president of the Illinois Central Railroad, asserted that American lines had been unduly hampered by ill-advised, costly and pernicious laws, orders and regulations. He asserted that the money wasted in many directions through interference of those who knew little about the actual conditions of railroads, would provide real safety if the railroad managers were permitted to spend it in the proper direction. He said in part:

"Practical railroad men know the order in which they should go about the bettering of physical conditions. If a wreck occurs through a collision would-be regulators immediately propose panacea in the abolishment of wooden cars, although they do not know as yet to what extent steel cars are preferable. We pay out in maintenance of way, labor and supervision about eight per cent of gross earnings and there are paid out in claims and personal injury suits and compromises 3.5 per cent of gross, the greater part of which claims are fictitious or exaggerated and would not obtain against any other corporation or individual.

"Millions of dollars are being paid out in refinements of freight car equipment, such as the adjustment of the height of cars, wrought-iron brake wheels that are never used, instead of cast-iron, leaders on each corner of the cars and many other innovations that do not go very far to prevent personal injury.

"A railroad manager would be criminal to put money in expensive track elevation, separation of highway crossings or steel cars if the road had only sand ballast, wooden bridges, inadequate drainage and protection against washouts and landslides, items which are well known to the practical operating officials as being those which should receive first consideration.

"It is absurd to expect stockholders to go without dividends indefinitely to provide for the betterment of railroads from which they will not be permitted to obtain any additional returns. The greater part of them are poor people, who live on the income from their investment."

E. P. Ripley, president of the Atchison, Topeka and Santa Fe, in an article published in the current issue of the Official Railway List, suggests the adoption by railroads throughout the United States, of a standard freight car, uniform in all essential details.

"If, in addition," says Mr. Ripley, "we could establish a freight car pool, or an equipment company, the stock of which should be owned by the railroads, so much the better. There is no sort of doubt that we shall be forced to something of this kind eventually.

"Why not make the attempt to do it voluntarily and properly instead of being obliged to do it by law with the necessary accompaniment of fed-

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eral inspectors and the cumbersome and often impracticable notions of the particular politicians who happen to be making laws for us at the time?"

President Markham, of the Illinois Central, in discussing the general car situation, has the following to say:

"There are some business losses from car shortages, but if State and National Commissions would give railroads authority to increase demurrage charges during fall and winter, when business is at maximum and raise minimum rates on many commodities now taking unnecessarily low minimums, there would be no reasonable ground for complaint. It must be manifest to all that if railroad facilities are to keep pace with constantly increasing traffic, continued increase in cost of railroad living must be offset by increase in rates."

B. A. Worthington, president of the Chicago and Alton, attending on October 2d, the dedication of the new passenger station of his road at Bloomington, Ill., on that occasion delivered an address on co-operation, during which he said:

"The Chicago and Alton Railroad is doing all that it can do to promote the well-being and happiness of its employes. In wages, hours and service and conditions of service, the Railroad Company has shown a liberal disposition that is not excelled elsewhere, and I now take this occasion to ask them to recognize this fact, to do a little thinking for themselves, and to come and join with us in working out the best results for each other in the sense of justice and in the spirit of advancement. We must lend each other loyal earnest support, and protect the interests

CHARLES M. SCHWAB.
President of the Bethlehem Steel Company.

C. H. MARKHAM.
President of the Illinois Central.

of each other conscientiously, if we of ourselves would hope to enjoy the conditions of thrift. Squalor and discontent spell failure always, everywhere. Common sense and the will to do, built this station in Bloomington; and every day of your lives, according to the earnestness and energy which you individually inject into your undertakings, they are building for you a station—a station in society, the place where you 'get off,' the place where you 'live.' If you build well, it will be a substantial structure; the railroad could not take it away from you if it would—for it is yours, all your own, a comfort and a source of enjoyment, a shelter in the days of adversity. If you undertake a building of this nature, you will be surprised to find the 'help from the outside' that you will receive when you have demonstrated your earnestness and your good-will towards the community in general. God helps those who help themselves—we do not always understand why or how, but we must be guided by the general principles which govern, and then we cannot go wrong.

"But if, against your own better judgment, you profess any consolation whatever in finding fault with what is, criticizing and obstructing the efforts of others, you will get exactly what you are bidding for—squalor and want. You are not a desirable member of any community, but a drag on society. There are weeds in your garden, and there is dissension and want—the factors of dissolution, in your home. It cannot be otherwise.

"It is up to the individuals to choose what they want and to make a legitimate worthy effort to accomplish it—the balance is easy, but you will have to think for yourselves individually and act for yourselves, as no one can do that for you. And to have your own rights respected, you must respect the rights of others, and defend them if you would be defended in your own rights.

"And as for workmen in our shope, I want to ask them to take a broader view of the situation;

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stop this nursing of discontent; see if you cannot find more substantial benefit in increasing efficiency, and promoting economy of workmanship. For a number of years past we have been struggling at cross purposes—the Railroad Company has made liberal concessions, but these apparently only whet the appetite for unreasonable conditions of service which the Railroad Company cannot grant—the closed shop and constant interference with the functions of management of the property. I doubt whether you have profited by working half time, or but little better. So far as the Railroad Company is concerned, we cannot expect to retain good men in the service, with so much uncertainty about their employment. We must have an efficient, reliable and loyal set of men in our shops; we want to satisfy them in the matter of compensation and conditions of service. We want them to build homes and rear families here in Bloomington, and the Railroad Company is going to use every means within its power to protect that kind of men, but the Railroad Company can do very little if the men themselves refuse to assist or to be assisted."

PENNSYLVANIA RAILROAD TO SELL COAL HOLDINGS

President Rea, of the Pennsylvania Railroad has announced that the Board of Directors of the company had decided to sell its security holdings in the anthracite coal companies which have been attached to its system for nearly forty years. The Susquehanna Coal Company is the principal operating company and selling agency for these companies.

The action of the Pennsylvania Railroad is significant. While this company has never been a very large factor in the anthracite trade, the character of its relations with certain coal companies was essentially the same as that of other anthracite carriers; and, in taking the action it has, it has at least implied that the direct interest of railroads in coal properties is no longer in harmony with the interpretation of the law likely to be made by the courts.

It is reported from Washington that the announcement of the Pennsylvania Railroad was particularly pleasing to the officials of the Department of Justice as being in conformity with the Government's position that the coal carrying roads should be divorced from coal mining companies. Among certain railroad officials, it appears to be the belief that Attorney General McReynolds' attack on the so-called "hard coal trust" will probably be the most important and far reaching move he will make during his term. Suits under both the Sherman anti-trust law and the commodities clause of the Interstate Commerce Commission act are already pending against the Reading and the Lackawanna railroads in an effort to separate them from their coal mining companies. The question of dealing similarly with the Erie and the Lehigh Valley is reported to be under consideration.

While the action of the Pennsylvania Railroad does not, in itself, admit the illegality of their interest in certain coal properties, it is undoubtedly generally interpreted that way, and does not tend to strengthen the position of other carriers in this particular. The Pennsylvania Railroad has gained an enviable reputation for longheadedness in discounting the future, and its actions generally accurately indicate which way the wind is going to blow. In fact, the announceemnt of the Pennsylvania Railroad that it would sell its security holdings in anthracite coal companies coming as it did simultaneously with negotiations for the disposal of its controlling interests in the Cambria Steel Company, means that this railroad has decided to cut loose from every part of its business which is not strictly necessary to transportation.

Another motive attached to the Pennsylvania's action is that the need for protection against rebate extortions and discrimination in tonnage and prices, which caused such properties to be acquired originally, no longer exists, as a result of the stricter regulation of big business. The railroad can now use the capital it has tied up in such industries to much better advantage in its transportation lines.

The railroad's anthracite coal properties turn out about 9 per cent of the entire anthracite production, the Pennsylvania's shipments in the eight months ended August 31 being 4,076,893 tons against 45,709,606 tons for all companies. Its investment in the Susquehanna Coal Company, its chief operating company, is represented by $2,136,000 stock and $6,000,000 5 per cent certificates, but the properties are probably worth much more than this $8,136,000 face value.

The railroad's Cambria Steel stock amounts to $22,504,100 par value. It is quoted around $52 (the par being $50), so that even at market prices this means approximately $25,000,000.

Its holdings of Pennsylvania Steel stock exceed $20,000,000 par value, but would hardly bring over three fourths of that at present. This gives a rough approximation of at least $50,000,000 as the market value of the anthracite coal and the two large steel properties owned by the railroad.

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Contemporary Opinion

Railway Financial Results for the Fiscal Year.

SLASON THOMPSON, Director of the Bureau of News and Statistics, of Chicago, in a recent bulletin discusses the financial results of railway operations for the fiscal year ending June 30th. He points out that while the gross revenues for the year show a normal increase, they have been attended by such an abnormal increase in operating expenses and taxes, as to result in a net income wholly inadequate to meet the pressing demands ot the American people. To quote from the bulletin:

"How many persons know that, although the gross revenues for the fiscal year 1912-13 exceeded those for the fiscal year 1909-10 by over $384,000,000, the net income of the railways increased less than the four odd millions of this imposing figure?

"In the meantime the railway mileage in the United States had increased 10,000 miles, the total trackage over 25,000 miles, and the facilities and equipment in proportion.

"It is the struggle to keep pace with the facilities and equipment demanded by the normal growth of the country and its traffic that makes the necessity of the railways for higher freight rates so insistent and meritorious."

Mr. Thompson presents a table which covers the gross revenues of the railways by months since July, 1907, which shows that the total for 1912-13 shows an increase of nearly $750,000,000 over that for 1907-08, but only $584,000,000 over 1906-07, the year before the panic. These monthly figures are very valuable indices of the fluctuation in railway traffic. For instance, the figures for October, 1912, show that in that month, the railways handled over 40 per cent more traffic than in January, 1912. This, of course, means that certain seasons of the year the railway plant is being operated at less than 70 per cent of its capacity with a certainty that at another season it may be taxed beyond that capacity. To provide against this continual recurring contingency, in the face of declining net revenues, is a financial problem for which the railways are seeking in vain for a solution.

In another table, Mr. Thompson presents the operating expenses by months for the same years. It is pointed out that the general trend of such expenses is best studied in the ratios of earnings. As the table indicates, the telltale ratio of 69.40 per cent for 1913, is the highest since the abnormal 69.67 per cent of 1907-08, when the railways were unable to meet the collapse of $300,000,000 in earnings with a corresponding curtailment of expenses. Through drastic economies this ratio was reduced to 66.12 per cent in 1909, from which increases in wages and in cost of materials have gradually forced it to a point where the largest traffic on record is not sufficed to keep the operating ratio within the margin of safety. A further study of this ratio discloses the effects of the disastrous floods of last spring. An operating ratio of 73.40 per cent for the second half of the fiscal year is unprecedented.

In another table, Mr. Thompson presents what might be termed a bird's eye view of the income account of American railways before and since the panic of November, 1907. Mr. Thompson asserts that no interpretation of the figures presented in this account is sound that ignores the expansion of the plant engaged in the transportation business of the American people. On its face it shows an increase of 21,363 miles of line since 1907. That is to say, a mileage equal to the total mileage of the British Isles has been added to the transportation facilities of the American people. Behind this is the fact that there are nearly 10,000 miles of operated railway in the United States not officially reported. In 1911 the official and unofficial mileage operated was stated to be 251,109. Since then over 7,000 miles of new line have been built.

Moreover the total trackage of American railways has increased from 327,975 miles in 1907 to 375,000 miles (computed) in 1913. As each mile of added track stands for the expenditure of an average of $40,000 per mile in land, labor, terminal facilities and all the appurtenances that go to the make-up of our American railways, the railways of the United States represent today an investment of approximately $2,000,000,000 more than in 1907. And the investment has been imperative in the face of advancing operating costs and a stringent money market.

This phase of the situation means that the fixed charges payable annually from income of the railways of the United States were fully $100,000,000 more in 1913 than in 1907, while the fund from which they were payable was only $82,000,000 greater, allowing nothing for the increased reserves for improvements and betterments and surplus.

Mr. Thompson concludes his review of the situation by stating that "while the Commission hesitates to perform an obvious duty, American railway credit is discredited in the money markets of the world. The necessity for an advance in freight rates which was urgent in 1910 is still more pressing to-day. The railways can know no genuine relief while operating expenses and taxes absorb over 73 per cent of their revenues derived from carrying freight and passengers at unremunerative rates."

Some Accident Figures.

IN another section of this issue, is printed a diagram which graphically portrays a heavy reduction in railway accidents during the course of the past few years, rather than an increase, as appears to be the popular belief. One of the universal failings of human nature is the temptation to exaggerate any evil and to develop therefrom a criticism which often contains so small an element of truth as to prove extremely misleading. "Leslie's Weekly" in commenting recently on the series of accidents which have, during the past year, occurred on the New Haven, and which have aroused universal newspaper criticism, has the following to say:

"People read sensational headlines but they never look at figures. The story of a dreadful accident on a railroad is at once accepted as a proof of gross mismanagement. If two or three accidents on the same railroad happen to follow in rapid succession, the whole line is condemned

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as unsafe and its management denounced as untrustworthy. Yet a popular writer has said that 'misfortunes come not singly but in battalions.' Who has not felt the force of this statement?

"Harsh criticisms of the New Haven Railroad have been heard and investigations by prejudiced authorities have been reported by prejudiced reporters of a vicious yellow press. We now have come up suddenly against a few stern facts. Let our readers have patience with the tale the truthful figures tell: In the ten years, covering the incumbency of President Mellen of the New Haven, it has operated over 5,000,000 trains, and carried a total of over 755,000,000 passengers with six accidents in which passengers were killed, and with only one fatality for every 26,000,000 passengers carried. In six of the ten years not a passenger lost his life by reason of accident to a train, though in that time 441,000,000 passengers were carried in approximately 3,500,000 trains."

Wrecks and Their Reasons.

(From the "Wall Street Journal.")

THE Interstate Commerce Commissioner who has been headlined to the effect that "railroad slaughter must cease" voices the desire of railroad managers no less than that of other citizens. Much has rightly been made of the use of antiquated wooden cars on busy trunk lines. Bricks of a sort can be made without straw, but no one has ever yet built a steel car without money.

Mr. Sulzer and the other sages at Albany have arbitrarily imposed upon the railroads of this State the useless expenditure for idle brakemen of $2,000,000 annually, enough to pay interest on the cost of more than 3,000 steel passenger cars. In the opinion of our astute lawmakers, which has been substituted for the unanimous judgment of trained operating officers, easy berths for superfluous trainmen must take precedence over purchase of steel cars or any other plant improvements.

This is not to acquit any company of the grave responsibility that rests upon all railroads which at this late day continue to use wooden cars where operating conditions call aloud for steel. Instead of one, there are a score such railroads. But what is the result going to be if the country becomes obsessed with the idea that steel cars are a sure preventative of railroad disasters? What of the effect upon the minds and conduct of a million and a half of railroad employes, if the newspapers and our public men support the preposterous cry that wooden cars, which have been in universal use for three-quarters of a century, have suddenly been discovered to excuse and condone every sort of lapse and dereliction in duty? It is important enough to abolish wooden cars, but it is ten times as desirable to abolish rear-end collisions.

No one who has read the searching analysis of the Wallingford wreck and its causes from the lips of a veteran railroad officer, printed in "The Wall Street Journal" can entertain much doubt as to where this problem must be attacked. It is 99 per cent a question of discipline, and discipline must flow from above downward through the operating staff. The right sort of division superintendent, especially if he has the right sort of general manager over him, cannot be balked of his determination to enforce his orders and the book of train rules even by the railroad brotherhoods, as officers of these organizations themselves admit.

By all means let us have steel passenger cars as rapidly as they can be built—and paid for. But let us look the facts squarely in the face, and at least try not to mistake one thing for another, not related.

A Real Railway Problem.

(From the "New York Journal of Commerce.")

THE outcry in Congress since the recent wreck on the New Haven has all been directed to the question whether the road had sufficiently equipped itself with cars of the latest type and with safety devices of a satisfactory kind. There has been very little inquiry whether the legislation of Congress was or was not responsible for the financial situation that made it necessary to proceed more slowly perhaps than some of the managers would otherwise have chosen. And these remarks do not apply solely or even in a primary way to the New Haven. They are quite as applicable to other lines which are in a much less satisfactory condition. It is not enough to say in reply that the lines are suffering from over-capitalization or that in years past they have been "exploited" by persons who were eager to make a profit for themselves and who left the roads burdened with debt and overloaded with large issues of stocks. Whatever truth there may be in such charges, and in the case of many railways they are undoubtedly well founded, they have little to do with the current day problems, for that can be met only by making provision for meeting conditions as they exist. It is well to bear in mind that if the railways of the country are now to be turned into unprofitable, non-income yielding enterprises, they will deteriorate in equipment, in efficiency and in general physical condition. That under such conditions they will suffer from the hazards of accident and of the general disorganization that comes from lack of interest on the part of their managers is inevitable.

Congress in dealing with this subject would do well to bear all these facts in mind and to endeavor, if possible, to apply a moderate degree of fairness to its treatment of the situation. The railroad question cannot be settled by restrictive legislation, but must be dealt with upon a broader basis. It must be considered as a general issue whose elements involve the rate problem among others. The broader relations of the roads to the public are fundamental in the discussion. Mere investigation and destructive criticism may in fact render the conditions a good deal worse than they now are instead of improving them. It is probable that there will be railroad legislation during the coming winter, partly with a view to extending the control over rates now exercised by the Interstate Commerce Commission and partly for the purpose of controlling issues of securities. Should these two subjects be dealt with, it will be desirable to give due weight to the fact that the railroads cannot make bricks without straw and that if they cannot get capital they cannot be expected to provide what capital will buy. This no doubt

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is an unpleasant thought to "progressive" legislators, but it represents a condition the results of which they cannot expect to escape.

Signals and Steel Cars.

(From the "New Bedford Standard.")

AMONG the easiest occupations of an editorial chair is running a railroad. It is curious, but there are writers of editorial articles who would never agree that a railroad man could by any possibility carry on a newspaper, who apparently have no doubt of their own perfect competency to run a railroad. At least, that is what we gather from the tone of the comment on the disaster in Connecticut.

Now, we believe that a newspaper is entirely justified in drawing general conclusions as to the fundamental principles of securing safety in railroad operation. These are, indeed, in essence, the same as underlie safety in any activity. But when the details and technicalities of railroad operation are involved, it is just as well to regard the stop signals. In the instance of this latest catastrophe, there is a wild call for the adoption and the installation of a new signal system, made to a very great extent by persons who have only the vaguest idea of such signals as are now in use. It is alleged, and for all we know accurately, that the system in use on the stretch of track where this accident occurred was antiquated and inadequate. That may be true. But it is also a truth that trains have been run hundreds of times under its operation with safety. The demonstration has been perfect that if it is properly installed, is properly managed by the operator, and is properly observed by the engineer, it is an effectual preventive of accidents. For it has prevented them. That some other system would be better may be agreed. We should have no hesitancy in agreeing to it, on the principle that there is nothing which mankind has made which cannot be improved. But a nontechnician is entirely out of his legitimate field when he undertakes to assert that this or that method answers requirements. He is especially out of his field when he alleges that any mechanical system can be a sure preventive of accidents. If he actually had the responsibility he would be less forward in his assertions. By all means, let the work of improving signal systems go on; but there is only delusion in the idea that the best possible system can get rid of human responsibility. It cannot. The constitution of things prevents. That is fundamental. It is a point on which the lay commentator must continually insist. But, if he is wise, he will let the technicians and the specialists make the machinery.

Much the same observations apply to the demand for steel cars. It certainly looks as if the demands were justified, and as if the steel car, under some conditions, would be a life-saver. Yet millions of persons have safely traveled in wooden cars, and the first cause of disaster has nearly always been back of the car itself. There is the possibility of safe travel in wooden cars demonstrated beyond cavil. There is also the possibility of danger, yet there is rarely, if ever, a case where the origin of the danger is not outside the car. Beside, putting reliance on steel cars is good only within limits. Given, as happened the other day, a heavy locomotive drawing a heavy train at forty or more miles an hour, and crashing into the rear of a heavy train which is standing still, somebody is going to get hurt, whatever may be the material of which the cars are made. One who has attentively considered the laws of motion and the impact of bodies ought to see that. The force of the shock must go somewhere; and where more certainly than into the bodies of the passengers in the rear cars? If steel cars are going in any degree to induce looseness in running trains, under any theory that travellers in them are immune, there had better not be steel cars.

When all is said, the conclusion comes back to the same place. The fundamental condition for safety is scrupulous carefulness of operation —a carefulness which must extend from top to bottom of railroad management, where every individual appreciates his own personal responsibility and lives up to it. The higher the place, the greater the responsibility, of course. But the old saying that a chain is no stronger than its weakest link is peculiarly applicable here. On this sense of responsibility, place all the mechanical safeguards that are necessary and without stint, and let them be put there by men who know rather than by men who criticise. Yet after all these are provided there will never be a moment when irresponsibility and carelessness, even in the most obscure places, may not drive the train to destruction and death.

Keeping in Touch with the Public.

THE "Literary Digest" in discussing the attitude of the modern railway executive towards the traveling public, has the following to say:

"The railway executive who disregards the wishes and the opinions of his traveling public is getting to be as old-fashioned as the red-flannel petticoat. He may not be totally extinct, but his type is rapidly being relegated to the place where good old wagons go when they break down. The wide-awake railroad president or general manager knows it is poor policy to allow his company to get on bad terms with the people who pay in the wherewithal, and he never neglects an opportunity to find out what his patrons think of the accommodations he is giving them. One railway head recently hired a young man to do nothing but find out what the patrons are thinking about the service and to report to the main office of the company cases of negligence on the part of employes. The man in the new position is to the railway executive what 'whiskers' are to the cat tribe. He is a feeler who warns when there is danger of getting 'in bad' with the public."

The Plethora of New Laws.

CHARLES NAGEL, former Secretary of Commerce and Labor, contributes an article to the current issue of the "American Leader" on "New Laws and no End" which is of more than current interest. Extracts are reproduced below:

"Nothing is more certain than that the enactment of a multitude of laws does not make for the majesty of the law or for the rule of the people. On the contrary, indiscriminate legislation augments the power of the Executive, because the need for his discrimination and for

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the exercise of his discretion is constantly increased. No Executive can to-day enforce all the laws all the time. He has neither the funds, the administrative machinery nor the time. Obviously, he must determine which laws shall be enforced; and to that extent his authority is made personal and arbitrary.

"Unconsciously the people have learned to accept this situation. The whim of the people is reflected in legislation; the will is expressed in executive action. This accounts for the more and more common demand upon the Executive to right evils, law or no law. This explains the people's applause for an Executive who assumes the reins of government and dictates what ought to be done in all its branches. We are tired of our own resolutions and declarations and rules. We demand action and we are showing a dangerous indifference to the fundamental principles of a constitutional government.

"In another direction this tendency to overlegislation is fraught with danger. The reliance of the individual upon governmental aid is a two-edged sword. No man can lean upon another for help without making corresponding surrender of personal independence. All government contemplates a measure of such mutual concessions; but when legislation embarks upon class recognition the protection afforded is temporary, and the peril incurred is permanent.

"Safety First" on the Southern Pacific.

HOW the Railway Clubs of the Southern Pacific have contributed to the "Safety First" movement is well described in an editorial from the Los Angeles "Times":

"The common carriers of the country have learned that John Barleycorn in the habiliments of Death sits at many a railroad crossing, at many a switch, and on many a siding, and rides upon the pilot of a hundred engines every day in the week. They might have nailed up the saloon door to their employes, and practically did so by forbidding a trainman under pain of discharge to enter any habitation where John Barleycorn had his domicile. The rule would have done little good if they had not discovered a 'more excellent way.'

"Block systems are good, and so are all other mechanical devices, but unless you get the man at the throttle valve to leave whiskey alone, deaths will occur on the track. By the introduction of a 'more excellent way' a report upon the Southern Pacific system shows that in four years ended July 30, 1912, 150,000,000 persons had traveled on trains of that road 'without killing a single passenger through collision or derailment.' In one small railroad town of 3,000 inhabitants, twenty-nine saloons had flourished, and kept on flourishing in spite of the rule forbidding trainmen to patronize these places. Then the road introduced its 'more excellent way' in the establishment of a clubhouse to take the place of the saloon, and six months later a dozen of the saloons had closed their doors because they would not pay. Two years after the club was opened, only seven of the twenty-nine saloons remained in business. Guidance was superior to obstruction, and education left prohibition away behind.

"Something had to be done, for no man was required to pay entrance fees nor monthly dues to enter a saloon, so the railroads had to make their clubs as free as water that runs in the rivulet or as the air that circulates around the globe. The saloon is the most democratic place on earth, where all distinctions are left behind as each man enters the door. So in the clubs all men stand upon a plane of social equality. Another thing, the railroad clubhouses assume good behaviour on the part of all who enter them, and there is never seen a sign prohibiting swearing, smoking, expectorating, or any other improper act. 'There are no rules of conduct.' The men are put upon their manhood and upon their good behaviour. In an article in a recent issue of the 'Outlook,' the discussion upon this subject closes as follows: 'Social welfare workers will find food for reflection in the remarkable success of this enterprise, which vigorously suppressed every tinge of paternalism and patronage in order to lay hands upon the most elusive, unwitting individual, the adult, independent, self-respecting worker, and keep him out of danger the danger zone of the saloon.' And let all men rise up and sing 'Selah.'"

Taking Steps to Avoid Car Shortages.

THE railways in the various sections of the country are vigorously engaged in taking all necessary steps to avoid a car shortage during this fall and winter. Damaged rolling stock is being repaired as rapidly as possible and all cars available are being put in first-class condition. Shippers are being appealed to in an effort to have them unload cars promptly and to their fullest capacity and steps are being taken to provide for quick handling of cars at terminals and transfer points. The following statements published in a recent bulletin distributed by the Railway Business Association, dealing with the car situation, are of peculiar interest at the present time:

By HON. EDGAR E. CLARK,

Chairman, Interstate Commerce Commission.

Periods of so-called car shortage occur each year, and continue for more or less protracted periods. Investigations which the Commission has made and information which it has gathered indicate that the so-called car shortage is always contributed to in a great measure by the fact that large numbers of cars are rendered unavailable for transportation because they are held under load for storage or reconsignment purposes, and because other large numbers of cars are held in the yards of carriers awaiting switching or movement.

The average movement of freight cars on the railways of this country is absurdly low. It is difficult to see how the situation in a congested terminal where many cars are already awaiting switching or movement would be improved by additions to the number of cars. Securing the highest possible efficiency from the existing number of cars would, to my mind, afford more relief than increase in the number of cars, and I entertain no doubt that the efficiency can be greatly enhanced by cordial co-operative effort between the shippers and the railway companies in the direction of prompt loading and unloading on part of the shippers and prompt movement on part of the carriers.

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I am sure that much has already been accomplished in this direction and I hope that the effort will not only be continued but will spread until it is participated in by all interested. All interests will thereby be served and promoted, and the congested period of the approaching winter will be thereby greatly relieved.

NATIONAL INDUSTRIAL TRAFFIC LEAGUE.

Resolution Adopted May 24, 1913.

WHEREAS, There have been frequent periods when the available supply of empty cars has not been sufficient to meet the requirements of the commerce of the country; and

WHEREAS, There has been waste in the car supply, for which both carriers and shippers are responsible, by reason of failure to promptly repair bad order cars, delay in movement, unnecessary detention loading and unloading, holding under load with material which should be unloaded, failure to utilize available car space by loading as near carrying capacity as conditions permit; therefore be it

RESOLVED, That it is the sense of this meeting that the duty rests upon carriers and shippers alike to make every effort to increase the efficiency of car supply by the elimination of such waste as they are responsible for; and be it further

RESOLVED, That the League continue its campaign, by circular and otherwise, as may be necessary to secure the maximum use of transportation facilities.

By J. KRUTTSCHNITT,

President, American Railway Association.

There can be no doubt as to the responsibility that is felt by railway managers with regard to furnishing an ample supply of cars to enable the great traffic of this Continent to be satisfactorily moved. The mere multiplication of the car units will not accomplish this. It requires vigilant supervision to prevent unnecessary delay in handling so as to obtain the maximum number of carload movements in a given time. A car unnecessarily idle is a distinct economic loss.

The proportion of time when a freight car is idle awaiting either loading or unloading is necessarily large. The reduction of this time to a minimum is a consummation that all railway officials have earnestly sought to obtain.

It is therefore satisfactory to note that so many shippers have come to realize the enormous loss in the movement of traffic that is entailed in the aggregate by even slight unnecessary delay on their part when multiplied by its effect upon the entire equipment, and are so heartily co-operating with our railways in endeavoring to correct the evil.

Taking a broad view of the case the best interests of both shippers and carriers in this matter, as in many others, are identical, and by working harmoniously together the successful operation of the business of the country will surely be largely conserved.

Commercial Organizations Assisting the Railways.

IT is evident that trade bodies are making a greater effort than ever before to assist the railways in avoiding a car shortage during the fall and winter months. Suggestions are being sent to members as to how they may prove helpful and in various ways the matter is being brought to the attention of shippers generally. The following from the "Journal" of the Philadelphia Chamber of Commerce is illustrative of how many organizations are assisting the railways to avoid the threatened shortage:

"The latest reports from the Car Efficiency Bureau of the American Railway Association show that there is a very small net surplus above shortage of freight cars in the United States, while the volume of traffic at this time is considerably in excess of the same period last year. Based on existing traffic and the present prospects of large crops for the fall, the probabilities are that there will be a car shortage during the fall and winter months. Shippers and consignees can render some very valuable assistance in keeping the shortage down to a minimum by co-operation with the carrier, and it is believed that observance of the three following measures will very materially help the situation:

"First, the shipping of coarser commodities, such as lumber, coal and cement, should be undertaken within the next few weeks, so as to get as much of it as possible out of the way before the advent of the heavy fall traffic.

"Second, expeditious loading and unloading of cars.

"Third, heavy loading of cars."

State-Owned Railroads.

INTERESTING information regarding State-owned railroads, their number and mileage, has been issued in a return published by the British Board of Trade, London.

In Great Britain, there is no State-ownership, but in the British Dominions over seas, it figures more or less. The return, it may be said, dates up to 1911.

Canada in that year had 26,278 miles of privately owned and worked railroads against 2,018 miles State-owned and operated, and 102 owned by the State and privately worked. Australia had 16,079 miles State-owned and 1,934 privately owned, and operated respectively by the State and private owners. South Africa had 7,548 miles State-owned, and 545 privately owned; New Zealand, 2,508 State-owned, and but 29 miles privately owned; and Newfoundland, 723 miles owned by the State but worked by private (company) owners, and 47 privately owned and operated.

India had 32,839 miles of railroads. Of them 6,874 were State-owned and operated, 18,245 State-owned but privately operated, 1,662 owned and operated by native States, and 1,648 owned by native States but worked by companies.

In seventeen other British colonies and Protectorates, there were 3,525 miles of railroads privately owned.

This return gives in all forty-two States other than British. In thirty-two of these, the railroads are owned, either wholly or in part by the Governments.

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Who Are Concerned in the Proposed Freight Rate Advance?

By EDWARD G. WARD
EDITOR OF THE RAILWAY WORLD

THE following appears in a syllabus of a decision rendered by the Commission in 1888, following an investigation of rates of the Chicago, St. Paul & Kansas City R. R. Co.

> "The commission has no power to compel a railroad company to increase its rates which are supposed to be so low as to be ruinous to itself or to its rivals.
>
> "The provisions in the Act to Regulate Commerce, that all rates shall be just and reasonable, was a provision inserted for the protection of the general public, and not for the protection of the carriers against the action of their own officers or against the action of rivals. The carriers were supposed to have means of self-protection against unreasonably low rates in the power they had to make the rates themselves."

While this expression was made in connection with conditions where the carrier had voluntarily instituted low rates to a large competitive center without making similar reduction to related points the expression has, nevertheless, been regarded as a fundamental and controlling principle in connection with the Commission's powers, and the public was not slow to realize its opportunities and began to look about to see where it needed protection.

Complaints began to pour in directed against alleged unreasonable charges or discriminations and the correction invariably sought, if not always directly prayed for, was the lowering of some rate or the abolishment of some alleged discrimination by an adjustment *downward*. The law was regarded as designed only for shippers and it would have been futile to search the briefs of complainants' counsel with any thought of finding the suggestion that the matter complained of might be remedied by the Commission advancing certain rates. While in innumerable instances a slight advance in rates would have removed discrimination, with no actual hardship to shippers or competing communities, it was always the carrier that was to be disciplined. It is only in recent years that the Commission has occasionally, when requiring the removal of discrimination, left it optional with the carrier to increase certain charges or lower others.

It is true that in former years the carriers could, as now, initiate and file rates, and these could have included reasonable increases, but the growing activities of the public and its agencies have gradually restrained the carriers from inviting litigation and expense in the face of known opposition, and induced caution in the matter of rate adjustments involving advances, even where they were manifestly reasonable and equitable.

While the carriers still have the right to initiate new rates, the Commission now has the added power of suspension. As anyone may apply for a suspension and as, in a majority of such cases the reasons appear sufficient to the Commission to grant the application, the delay and subsequent disposition of many of these cases have been discouraging and operated to further deter the carriers from undertaking adjustments which tend to even slightly increase earnings, unless the justification shall be prima facie and there is some indication that they will be satisfactory to shippers and the Commission.

Under this gradual suppression of the carriers' initiative, many adjustments involving moderate advances which could have been made from time to time without serious disturbances to any commercial community, and which were fully justified by the demands for new facilities and improved service as well as to meet an increased cost of service, have been approached hesitatingly or abandoned with the result that, in numerous instances, the carriers have been restrained from exercising an inherent right in the management of their business and one which is recognized in the conduct of every other business, viz., that of adjusting the selling price of the commodity produced upon the basis of costs, labor conditions, proper facilities, the value of the convenience and accommodation to dealers or purchasers, including a living expense, a reasonable return on investment and some surplus. To these conditions may, in a large measure, be attributed the inability to keep the selling price of transportation abreast of the enhanced cost of what may be termed the *raw material* and running expenses, a condition not found in modern industries.

Labor strikes may occur; mines, factories and furnaces may shut down. All commercial business ceases on Sunday. The Government Post Office Department works only half time, and other recognized cessation of business occurs. The public accepts and is adjusted to these conditions. With the operations of the railroads the proposition is quite different. It may well be asked what would be the condition of the public mind and the authorities at Washington if all passenger trains were laid up on Sundays or if both freight and passenger service stopped entirely for twenty-four hours in the middle of the week for general repairs, as is often necessary with large plants. The public demonstration which would follow would be interesting if not pleasant. The facts are that the railroads, from public, social and humanitarian considerations, can never stop, and

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must adjust their operations to every kind of regulative supervision and control which has so completely encompassed every branch of the service.

The time has arrived when a broader view should be taken by the public of railway affairs and a more general recognition be given to the fact that the protection of the public under the law means not only their protection against excessive charges or discriminations, but also the protection of investments, and a full and fair consideration for the welfare of the great number of persons who, as investors, are equally entitled to the law's protection and further, that a reasonable adjustment in the selling price of transportation, which will more nearly accord with the cost of production, shall be permitted and accepted as necessary to secure this protection.

The great body of railway investors look to the management of these corporations for a reasonable return on their investment, but in whatever capacity they are interested, either directly as investors or indirectly as savings bank depositors, insurance policy-holders, employes or others who are in any degree dependent upon the earning ability of the carriers, the time has come when they should manifest their interest and influence, and thus assist the carriers to continue to conduct a progressive plant, to sustain their credit in the world's financial markets and to suitably compensate those, who by their investments, have made the development to the present stage possible.

A few figures will show the extent of interest in the question of adequate earnings for the railroads. Take to begin with the five principal life insurance companies who at the end of 1912 had 2,780,226 policyholders and the two principal so-called industrial insurance companies who had 20,000,000 policy-holders. The five life companies referred to owned railroad bonds to the extent of $922,353,437 and stock value at $48,358,493. The two industrial companies owned railroad bonds to the amount of $226,497,856. We have here a total number of policy-holders of 22,780,226 and total bond holdings of $1,148,851,293 and of stock approximately $48,000,000. It has been estimated that of the money which policy-holders expect insurance companies to have available as guarantee to meet policy requirements, nearly thirty-three per cent. is invested in securities of the railroads. This suggests that every holder of an insurance policy has a direct concern in the earnings of railroads.

Official records show that there are somewhat over 10,000,000 depositors in savings banks and that in 1912 these banks held railroad securities to the extent of $794,083,006, while State and private banks and loan and trust companies held similar securities amounting to $453,165,423. It is conservatively estimated that of the entire population about thirty-three per cent. have a direct interest in railroads through their private bank deposits.

Again railroads are the largest consumers of coal, and it is well known that the operations of the coal industry are largely dependent on the requirements and operations of the railroads. In the coal industry there are 725,030 employes. In a recent year, the railroads paid for coal alone $215,000,000, of which over sixty per cent. went to the labor engaged in its production, or approximately $130,000,000.

We come next to the men engaged in producing railroad supplies. This number has been estimated to be from seventy to seventy-five per cent. of those engaged in industrial activities. It has been conservatively estimated that the number of men employed in the railway supply business and allied industries whose product to some extent is consumed by the railroads, is approximately 1,500,000.

In 1912, there were 1,728,000 railway employes, and their compensation was $1,268,977,272. As compared with 1910 the increase was 29,183 employes and $125,251,996 in wages. It is estimated that of the latter amount $21,000,000 is due to the increase in number of employes and $104,000,000 to increased compensation due to advance in wages. Of each dollar earned by the railroads, forty-four cents is paid to labor. Since 1907, the number of employes has increased only 3.4 per cent., while their compensation has increased 15.6 per cent.

Last, but not least, we should not overlook the stockholders the sole income of many of whom is derived from railroad securities. Of these there are approximately 400,000, and the average rate of dividend, as stated by a recent issue of Poor's Manual, is about 4 per cent.

In the opinion, on the Advanced Rate Cases of the Eastern railroads, rendered two years ago, the Interstate Commerce Commission indicated what dividend a railroad should earn on its stock, and took the condition of the New York Central, Pennsylvania and Baltimore & Ohio as an illustration and stated:

> "We are of the opinion that the sum remaining after the payment of fixed charges (including as a fixed charge the dividend on the preferred) should be between 7 per cent and 8 per cent. on the common stock. It should have sufficient earnings so that it may pay a dividend of 5 per cent. on its common stock and carry 2 and one-half per cent. to surplus or pay 6 per cent. and carry 1 and one-half per cent. to surplus."

Seven and a half per cent. upon common stock is apparently what the Commission considers reasonable for a railroad to earn, but is the comparatively small margin of 1 and one-half per cent. to be assigned to surplus ample for that purpose, in view of the contingencies that are always liable to arise, seriously and unexpectedly drawing upon or entirely depleting such surplus? A notable instance of this sort occurred this Spring in the case of the Ohio floods.

A broader consideration must be given to these matters if the public confidence is to be retained and the credit of the railways regarded as ample to attract new investment. That this confidence needs stimulation is evidenced by the record of new securities listed for public acceptance. In 1909, the total of such securities was $2,424,482,585. Of this amount, railroad securities were $1,513,008,815, or 62.4 per cent. In 1912, all corporations issued $1,816,008,540, of which the steam railroads issued $345,787,000, leaving for other corporations $1,470,221,540. The percentage of railroad issues in 1912 was only 19 per cent. In 1909, the railway securities issued were $601,535,045 more than the securities of other corporations, while in 1912 the securities issued by corporations other than railroads was more than four times the amount of railroad securities. If the proportion of railroad securities in 1912 had been the same as in 1909, the amount would have been

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$1,133,189,328, or three times more than was issued. From these results, it is apparent that corporations other than the railroads since 1909 have issued securities showing an increase, whereas the railroad issues have declined each year. The non-railroad issues in 1912 were $550,000,000 more than in 1909, while the railroad issues were $1,167,000,000 less.

Here we have the strongest indication of the public view of the attractiveness of these respective securities, as well as an indication of the impaired credit of the railways. This credit must be rehabilitated and maintained. The only business-like method in which this can be accomplished is in the same manner that would be applied to any other private or corporate enterprise, that is, adjust the charges for the service or product upon such a basis as will insure adequate interest returns, permit a reasonable profit and allow something additional for contingencies, which will prevent the impairment on closing down of the industry.

Summarizing the number of persons indicated above whose income is directly or indirectly dependent upon or affected by the railroad business, we have a formidable total, and the investments of institutions back of which are the securities of the railroads are shown to represent enormous amounts. In addition there is the independent question of facilities for the great army of shippers whose business welfare is daily dependent upon the uninterrupted operations of the railroads, and it is mainly for the purpose of meeting the growing demands of shippers and commerce and enlarging facilities generally that the present effort to secure adequate revenue for these expenditures has been made. It is estimated that millions of dollars are needed for the enlargement of terminals to meet the demands for the coming years. There is also an increasing and constant demand for additional equipment. In the mild winter of 1912, the net car shortage rose to 51,000, and the highest number of cars asked for and unavailable was 73,000. Had the winter been normally severe, a congestion disastrous to commerce would have ensued. It is admitted that all facilities have not grown as rapidly as the traffic.

The many phases of this problem are now receiving wide public attention and there are hopeful signs that the public is disposed to regard the situation with greater equanimity and less antagonism. The classes indicated herein are clearly and directly concerned in the pending questions. This they should recognize and do all they can to stimulate action for fair and full consideration of the changed conditions which apparently justify more adequate compensation to the carriers for their services. It may be reasonably hoped that the Commission will recognize these changed conditions, the possibility of which was anticipated in its decision in the Advanced Rate Case as follows:

> "We do not say that the railroads may not increase their incomes." . . . "We trust they may and confidently believe they will, but if the time does come when through changed conditions it may be shown that their fears are realized or are approaching realization, or when through a survey of the whole field of operations there is evidence of a movement which makes against the security and lasting value of legitimate investment and adequate return upon the value of these properties, this Commission will not hesitate to give its sanction to freight rate increases which will be reasonable."

The "evidence" is at hand in higher wages and the greater cost of operation and the necessity of affording greater facilities. This and the known impairment of the railways' credit would seem to afford all the "evidence of a movement" necessary to satisfy the conditional promise of the Commission.

Is it not quite within reason to expect that the same public regulative power which can now be employed to prescribe for the protection of *purchasers* of transportation the maximum charge they need pay, shall with equal concern in the interest of that great number who actually *own* the transportation plant, assure to them, such minimum charge for the output, as will maintain the plant in complete working order? Where these purchasers are dependent upon this plant for their material, physical, social, educational and practically every other condition pertaining to human comfort and welfare, should they not urge these considerations in behalf of maintaining the plant in the highest state of efficiency?

The following significant facts as to the operations of the railways in the United States for the year 1912, compiled by Mr. Slason Thompson, of Chicago, are given. That year resulted in:

The lowest average freight receipts since 1900;
The highest wages in their history;
The multiplication of costly regulations;
The heaviest loss and damage claims on record;
The highest taxes yet levied;
The largest gross revenue received;
The largest expense of operation paid.

The combined result of these developments was the lowest relative *net* income in 25 years. These are facts worth remembering by those who are concerned in the proposed advance in freight rates.

"JIMMY, DIDN'T I TELL YOU NOT TO WEAR THOSE LONG PANTS TODAY? GET RIGHT OUT OF THEM AND INTO THESE SHORTY ONES! YOU ARE GOING TO TRAVEL FOR HALF FARE!"
"AW, MA!"

VACATION ECONOMIES
(Webster, in the Chicago News)

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President Willard's Address to the Officials of the Baltimore and Ohio

NEARLY three hundred railway officials of the Baltimore and Ohio attended the second staff meeting of that system held at Deer Park, Md., on September 22d and 23d. These included the officials and members of the operating, transportation, engineering and mechanical departments who are responsible for the operation and maintenance of the 3,500 miles of line of this great system. The meeting was arranged in order that there might be a general discussion of the affairs of the Baltimore and Ohio including its policies and its operating problems.

It was necessary to temporarily move the headquarters of the railroad to Deer Park for the two days in question on account of the attendance at the meeting of so many of the higher officials. President Willard was accompanied by his executive staff, including Vice-President A. W. Thompson, Chief Engineer Stuart and General Managers Galloway and Loree.

A few months after Mr. Willard became president of the Baltimore and Ohio and allied companies he called a meeting in order to confer with his fellow-officials as to the needs of the property and also to outline the policy of the management in its dealings with the general public. At that time Mr. Willard placed the needs as he saw them before the officials and told them what he considered should be done and the amount of money which should be spent in placing the road in position to handle its constantly increasing traffic and in equipping it for future development. The program outlined at that time was entered upon, so that the present meeting was called to discuss the railroad and its problems from the angle which it presents after the large expenditures have been made.

Since the staff meeting there has been expended in betterments on the Baltimore and Ohio system $100,000,000. Miles of new track have been constructed, mountains have been torn away to provide low grades, tunnels have been eliminated, safety appliances have been installed and hundreds of passenger cars and locomotives of all types as well as thousands of freight cars have been added to the service.

The most significant result of this large expenditure for new facilities is in the earnings of the Baltimore and Ohio Railroad for the last fiscal year, which were in excess of $101,000,000 gross, so that the president of the company outlined to his official family the plans for handling the enormous business which produces such revenue and defined questions of efficient and official service.

Vice-President Thompson presided at the meetings and introduced President Willard to the other officials. President Willard, in his opening remarks, stated that he was glad to see so many of the Baltimore and Ohio men who had attended three years ago, and that many of them are filling positions of increased responsibility, which he termed a fulfillment of the Baltimore and Ohio policy of promoting men. The president told the officials that he wanted each one to consider himself an assistant to the president, and that they would discuss matters intimately as between chief and assistant. Mr. Willard cast a retrospective glance at the Baltimore and Ohio of three years ago, before the program of improvements was undertaken, tracing step by step the expansion of the railroad's facilities, the growth of the company's business and the problems which have confronted the management, as well as the American railroads as a whole, during that time. Every phase of railroad operation came in for a part of the discussion—the question of credit and its relation to securing funds for improvements, public relations, economy and efficiency of operations were taken up.

GATHERING OF BALTIMORE AND OHIO OFFICIALS AT DEER PARK, MARYLAND. PRESIDENT WILLARD IS THE CENTRAL FIGURE OF THE LOWER ROW.

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In referring to the improvements which have been made to the Baltimore and Ohio since the last meeting was held, Mr. Willard called attention to the fact that the company has spent some $40,000,000 in the betterment of the physical condition of the property, with about $10,000,000 under way and $47,000,00 in the purchase of new equipment, station improvements and other work which brings total expenditure close to $100,000,000. He further stated that, with favorable conditions obtaining, the hope of the management is to continue this program at the rate of $15,000,000 annually for the next five years, provided that larger expenditures might be made if conditions justified.

Pointing to the benefits of the improvements which have been made, the chief executive said that the road is in such shape now that a train running between Chicago and the Atlantic seaboard can be operated with an economy which compares favorably with the performance of other lines and over a route of easy grades. In taking up what properly may be termed the railroad question, Mr. Willard told his audience of the new problems constantly coming before the railroads for solution, entailing large expenditures of funds, the increases in wage which have been granted the railroad employes under agreements and by arbitration proceedings, the added burdens of legislative enactments, higher taxes and greater costs of materials and supplies of all kinds.

Applying the wage increases to the Baltimore and Ohio, Mr. Willard said that the result of such movements during the past three years has brought about a condition to-day where the pay is approximately $5,000,000 a year greater, the number of employes being equal, than three years ago, and this, he said, did not take into consideration the demands of the conductors and trainmen now being settled by arbitration. Taxes, he said, increased about $740,000 last year, and that this year they would likely increase $1,000,000. This meant that there would be an increase of $10,000,000 in expenses before any consideration could be given to the application of net earnings to interest requirements. This increase in expenses was wholly independent of the rights of stockholders.

Mr. Willard stated that the stock of the Baltimore and Ohio Company to-day represents an investment of 100 cents on every dollar. Drawing a parallel between the railroads and other business enterprises, the speaker compared the rate of interest obtainable through investment in industrial and manufacturing securities and pointed to the fact that the railroads, in order to retain their position in the eyes of the investing public, must bear evidence of the stability of their securities from an investment standpoint.

In defining policy of the Baltimore and Ohio on the question of dividend and rates of interest, the president said the policy is not one of striving to increase the dividend rate above 6 per cent, but that any margin increase of surplus above this amount is returned to the property in the form of betterments. With such a situation prevailing it was stated that the plan would be to increase maintenance expenditures by providing heavy rail, putting in stone ballast, making station improvements, etc.

Summing up the railroad situation, Mr. Willard stated as his belief that the hope of the railroads for the future is to be found through an increase of rates for services performed, and acting on this belief the Eastern railroads have applied to the Interstate Commerce Commission for permission to make a horizontal raise of five per cent in existing rates, which action was taken in view of a decision handed down by the Commission. Stating that he had every confidence in the outcome of the matter, Mr. Willard told his auditors that if for any reason there should be a failure on the part of the Government authorities to grant the increase, the railroads would be in exactly the same position as the head of a household desiring to make improvements, but lacking sufficient funds. It would mean, figuratively, that instead of putting on a new roof the leak would be patched and instead of renewing the fence the pickets would be repaired.

Taking up another phase of the railroad question, Mr. Willard spoke of the close community of interest which should exist between a railroad system and its patrons, the railroads being a semi-public institution from which the public has the right to demand and receive satisfactory service and which, in turn, has the right to expect fair treatment from the people. He also touched upon the importance of strict discipline being maintained in the transportation organizations, both in the interest of the public and the company.

"When I was running an engine the importance of strict discipline was recognized," he said, "I realized it as trainmaster and superintendent and my whole experience since convinced me of its paramount importance."

He impressed upon his fellow-officials the importance of treating all employes in the service in the light of absolute fairness and justice and this he believed insures the greatest efficiency of operation.

The president stated that efficiency means economy. Efficiency in the operation of trains and the handling of tonnage means reduced cost of transportation, and in this connection he pointed to the rise in the average train loading on the Baltimore and Ohio system, which to-day averages 680 tons, or an increase of 50 per cent in three years. Economy in the use of material and supplies also means efficiency and such apparently trivial items as the saving of a single shovelful of coal by a locomotive fireman on each mile run would mean a large saving to the company in its fuel bills.

In closing his address Mr. Willard told the officials that he expected their strongest co-operation in having the Baltimore and Ohio system regarded as safe to travel over, prompt to ship over and in having the public understand that the management wants the communities it serves regard the company as a friend of the patrons at all times and also to work toward such ends that the investing public will look upon the property as offering the possibilities of sound investment.

A reception by the president and other officers of the different departments was held at the close of the meeting.

At the opening session of the second day the principal address was delivered by Vice-President Thompson, followed by General Manager Galloway, of the Baltimore and Ohio, and General Manager Loree, of the Baltimore and Ohio Southwestern, Cincinnati, Hamilton and Dayton lines. A number of other addresses were made by officials, who took up various questions of operation.

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Increased Rates and Facilities Essential to National Prosperity*

By B. A. WORTHINGTON,
PRESIDENT, CHICAGO AND ALTON RAILROAD.

NO better evidence of the decline in railroad prosperity can be adduced than the comparative composite statement of the income accounts of a number of important common carriers in the state of Illinois, including the Wabash, the Chicago and Eastern Illinois, the Big Four, the Illinois Central, the Chicago, Peoria and St. Louis, the Toledo, Peoria and Western, the Lake Erie and Western, the Toledo, St. Louis and Western, the Cincinnati, Hamilton and Dayton, the Vandalia, the Peoria and Eastern, the Chicago, Terre Haute and South Eastern, the Chicago, Indiana and Southern, and the Chicago and Alton, fourteen railroad systems invaluable to commerce as agencies of concentration and distribution, particularly to the state of Illinois, more particularly to the Central Manufacturing District of Chicago.

	Fiscal Years. 1908.	1913.	
Opr. Rev.	$160,664,617	$206,172,785	*28.3%
Opr. Exps.	118,257,987	162,078,777	*37.0%
Net Opr. Rev.	42,406,630	44,094,008	*4.0%
Opr. Ratio	73.6%	78.6%	
Taxes	$5,705,564	$7,940,289	*29.1%
Net Cor. Inc.	10,843,704	4,753,493	†56.2%

*Increase. †Decrease.

The year 1908 was a panic year. The year 1907 and other years prior to 1908 were better than 1908.

Net after taxes in 1912 and 1913 were smaller than in any previous years.

Taxes increased $1,000,000 from 1911 to 1913.

Net corporate income, after deductions, shows that these fourteen railroads had $16,155,624 to apply to dividends in 1910; only $4,193,877 in 1912; and only $4,753,493 in 1913.

Net corporate income shows a decrease of 56.2 per cent since 1908; in other words, decreasing twice as rapidly as total operating revenues are increasing; i. e.—

Total operating revenues increased 28.3 per cent.

Net corporate income decreased 56.2 per cent.

Deductions from income have increased due to an increase of almost $130,000,000 in new capital put into additions and betterments, and to the increase in rates of interest which the railroads have to pay.

FALLACY OF THE GROSS EARNINGS THEORY AS A MEASURE OF RAILROAD PROSPERITY.

In dealing with the matter of railroad regulation, more particularly with the matter of rate limitations, it is customary with commissions and legislatures to attach marked significance to the continually increasing gross earnings of the railroads, the inference being that gross earnings constitute a fairly reliable index to the financial results of operation.

Not only is this theory entirely wrong, but the premises upon which it is based are unsound. Not only has revenue per unit of service decreased very rapidly in recent years, but expenses have increased in even greater ratio—a two-edged sword that destroys the theory of gross earnings representing an accurate barometer of railroad prosperity.

To illustrate concretely what this means in dollars and cents, I have only to cite the current earnings of three of the greatest railroad systems in the world—the New York Central Lines, the Pennsylvania System, and the Southern Pacific Company.

The July statement of earnings and expenses of the New York Central Lines, recently published, shows:

Total Operating Revenues	*$2,328,988	—10%
Total Operating Expenses	*3,239,970	—19%
Net Operating Revenues	†910,982	—15%

*Increase. †Decrease.

For the same month the Pennsylvania System published the following statement:

Total Operating Revenues	*$1,995,053	— 6%
Total Operating Exp. & Taxes	*2,727,745	—19%
Net Operating Income	†732,745	— 8%

*Increase. †Decrease.

And the Southern Pacific Company reports:

Gross Revenue	†$1,380	—1.100%
Oper. Exp. & Taxes	*784,803	— 14%
Rev. Over Exp. & Taxes	†786,183	— 19%

*Increase. †Decrease.

Here are two instances wherein total operating revenues increased very substantially, but net decreased in a much greater ratio; in the latter instance, with approximately the same gross revenue, an alarming decrease in net after deducting operating expenses and taxes, is shown.

I call your particular attention to the fact that these are the *current* results of operation of three of the foremost and most progressive railroads in America, at the present time enjoying the heaviest volume of traffic in their histories. And, incidentally, I venture the question—what can be expected of weaker lines? And what may be expected of even these strong lines themselves in a period of adversity which is sure to come and which, in its very nature, will take away the remedy now at hand?

While these figures in themselves are convincing that gross earnings do not constitute a reliable index to the financial results of operation of railroad properties, as you are aware they do *not* include fixed charges; the higher rates of interest now demanded on railroad bonds and notes; and the prohibitive rates for new capital necessary for improvements to handle economically the volume of traffic that is now moving, and the prospective traffic of the future, are factors which will influence the results of operation for years to come.

*From a recent address before the Central Manufacturing District Club of Chicago.

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How Depression Would Still Further Affect the Results of Operation.

You will remember the panic year of 1908, following the exceptionally prosperous business year of 1907; and as business depression is likely to come upon us at any time in this country under present business methods, it occurred to me that it might be interesting for you to note what would have been the effect, had the year 1913, following the fairly good business year 1912, suffered a business depression corresponding with the depression of 1908. By applying to the results of operation in the year 1912, the same ratios of decrease as in 1908 compared with 1907, eleven important railroads operating in the Central West would show the following decreases in 1913:

Total Operating Revenue	†$28,091,581	5.2%
Total Operating Expenses	†6,992,276	1.8%
Net Operating Revenue	†21,099,305	34.6%

*Increase. †Decrease.

Considering the railroads included in the foregoing comparison individually, four of the lines would show deficits in net corporate income ranging from $300,000 to $3,850,000; three of the lines would show comparatively small margins of surplus under net corporate income, ranging from $336,000 to $682,000; there being only four of the larger and stronger railways systems that would be able to maintain a sufficient surplus to insure stable financial conditions, even during a depression of one year's duration, and a continuation of such adverse conditions would no doubt produce more disastrous results.

This takes no account of the continually increasing taxes and fixed charges; nor is there any substantial assurance at hand that a recurrence of the 1907 panic is impossible or even improbable. Apparently we have averted a panic this fall—or, have we only postponed it after all? Have we been treating the *cause* of the trouble, or only a *symptom?* Have we eradicated the cancer or have we only chloroformed the patient?

Time will tell—time is telling.

It is extremely urgent that commerce should recognize these conditions and display some activity to relieve the situation. Kind words of sympathy are not out of place at a funeral, but sympathy is a poor substitute for nourishment; and what the railroads need now *is* nourishment in the shape of increased freight rates and it is up to the manufacturing interests of Chicago, as a matter of self-defense, to take the lead in fighting for this cause.

Hasty and Ill-considered Legislation.

The disregard and contempt displayed by the makers of our laws for the knowledge and experience of thousands of trained experts in railroad matters, and the extravagant recklessness and utter foolishness in tampering with the most delicate and evenly balanced machinery of commerce, are serious matters which call for prompt and heroic treatment, and nothing can be as effective as a serious, conscientious and persistent protest on the part of the shipping interests of the Central Manufacturing District. With knowledge and experience, even actual necessities so liberally discounted in legislative matters, the railroads themselves are at the mercy of an unsympathetic public, bound and gagged with legislation and plucked to a finish by the harpies of politics.

Interests of the Railroads and Industries Interdependent.

In this connection it might be well to look back to the early days of railroading—wherever we may look we find the railroads nursing industry, defending industry with every means at its command—lawful or unlawful, the *railroads defended industry,* for the railroads always have recognized that industry is indispensable to successful railroad operation. In many instances, we find that the railroads donated building sites, and transported building materials, either free of charge or at a nominal cost. The old-time rate wars, destructive to the railroads themselves, were sacrifices to industry.

The acute business instincts which prompted the railroads to accept the dangers incident to their pioneering work of development, were always sounding the future. The railroads anchored their lines with industries and pushed on farther and farther into the wilderness, always looking to the future for reward. Profits, so called, lay far beyond the span of life of the great men who undertook this hazardous work in the interest of civilization; they responded to a mightier cause, and bequeathed to us the legacy of their efforts—the railroads and the industries which the railroads have encouraged and protected always—the elements of peace, happiness and contentment.

However, changed business conditions have come about—purely and simply through the efforts of the railroads to protect industry.

Discrimination, manifestly an unfair instrument of protection but a perfectly natural weapon in the early pioneering days, has been condemned; discretion is indicted and held as an accomplice. The fine economic poise of commercial conditions, ever changing and shifting to meet the varying needs of industry, hitherto has been established automatically by freight rates which maintained more or less definitely a perfectly natural balance in commercial relations. In the nature of things this compensating influence, the most delicate and perfect, withal the most potent regulating influence, cannot be fixed permanently and arbitrarily without immediately disrupting and finally wrecking the entire machinery of commerce itself. We are straining here and there, some pieces of this vast machinery already broken, and it is the sheerest nonsense imaginable to further withhold the relief that is now within our hands. A recurrence of the panicky conditions of 1907 or a serious stringency in the money market under present conditions, without doubt, would remove the remedy forever.

Rate Adjustments Should be Made to Meet the Conditions of Commerce.

The right to adjust rates to meet the conditions of commerce is an inherent right with the railroads, automatic and self-adjusting in every respect. Denying the railroads the right to adjust rates, except on a downward scale, is pernicious and destructive; it wholly disarms the railroads of defensive measures, either for itself or for industry, which is one and the same thing, and we have now arrived at the point where industry should protest, with all the vigor and insistency of which it is capable,—not only in rec-

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ognition of services performed in the past, but in recognition of the requirements of the future.

The serious predicament in which the railroads now find themselves, is due entirely to the defensive measures which they adopted to *protect* commerce. All the talk we hear about "extortion" on the part of the railroads is merely the modern version of "the world am flat and the sun do move" theory. It has no place in the ethics of railroading, as any one at all familiar with the situation well knows, wholly incompatible with the theory of rate-making or the upbuilding of industry. The present rate structure is wholly a natural evolution along economic lines, and the less interference we interject into the situation by legislative means, the better it will be for all concerned.

With the public clamoring for steel passenger train equipment, the Government heading the procession with mandatory orders for steel postal cars regardless of everything else; the public still further demanding new, elaborate and exceedingly expensive passenger stations, not only at Chicago and Kansas City, but at many other points, none of which means additional revenue—only additional expense; the public also demanding and enforcing the elimination of grade crossings, and innumerable useless and impracticable "improvements"—it is a plain case of "money down and hands up" inconsistent with either justice or common sense.

Other Regulations of the Postoffice Department.

By the installation of the parcel post system by the Government, followed by heavy reductions in express rates, the earnings of the railroads from this source are seriously affected—first by taking away from the express companies a traffic upon which the railroads received a portion of the earnings; in the second instance, the very marked reduction in express rates affects the railroads to about the same extent that it affects the express companies, under the contract relations which exist between the railroads and the express companies and while the railroads previously were not receiving a fair compensation for postal services, they were compelled to accept the additional burden of the parcel post system, at wholly unremunerative rates, the maximum increase being less than five per cent of the allowance before the parcel post system was inaugurated.

Meantime taxes are increasing, labor organizations are pressing their claims persistently, and all expenses incident to operation are advancing.

Railroad Bonds Should be as Safe as Government Bonds.

Measured by the hazards undertaken and the industrial development induced, railroad securities should be free from disturbing influences of this kind. By all means railroad bonds should be as safe investment as Government bonds, for the physical property of the railroads constitutes the underlying value of Government bonds. It is a parody on business methods to tamper with a security of this kind. Withdraw the railroads, and all that railroads imply, and Government bonds would represent an entirely fictitious value, a wealth of the nation that would be wealth unavailable. And to the extent that these artificial measures are restricting railroad development, we *are* withdrawing the railroads as a tangible security of national prosperity.

Railroad Stocks Should be Free from Unnatural Influences.

In 1910, 33.29 per cent of the stocks of railroads operated in the United States had never paid a dividend, yet these railroads are invaluable to the thousands upon thousands of persons they serve. Surely there is no sound reason for making the conditions of operation so onerous and burdensome as to crowd out many of these lines serving territory where traffic is light. Every one of these lines should be protected, should be enabled to maintain the physical condition of such property at a high standard of efficiency, yield to capital invested in such stocks a fair return commensurate with the hazards undertaken and development created, and, further, to provide from operation a surplus to guard against reverses of the future.

Railroad stocks, however, are delivered by legislative enactment to the tender mercies of the pirates of labor and the sharks of finance—merely weather vanes of speculative sentiment, responding to the hot breath of summer and the cold blasts of winter. Railroad capital is reduced to a beggar at the doors of justice.

All this is arbitrary, unnatural and fraught with grave dangers. With reasonable rates for service performed (which is all that is asked, and all that is wanted), railroad property could be maintained at a high standard of efficiency, railroad securities no longer would be financial traps in the hands of wily speculators, but savings banks—anchors of the nation, and the impetus to industry that would be afforded by permitting the railroads to supply current necessities, would be nothing short of wonderful.

A Notable Gathering.—On September 27th, Mr. M. C. Kennedy, president of the Cumberland Valley Railroad, entertained at his summer home near Chambersburg, Pa., prominent officials of Eastern railroads, the Governor, ex-Governors, United States Senators, Congressmen, members of the Supreme Court, captains of industry and many professional men from the cities of Pennsylvania. These gatherings have been held for the last twelve years.

Among those present representing the Pennsylvania Railroad were: President Samuel Rea; Vice-Presidents W. W. Atterbury, George D. Dixon, Henry Tatnall, W. Heyward Myers; Secretary Lewis Neilson; Treasurer James F. Fahnestock, and Executive Assistant Ivy L. Lee. The Pennsylvania Lines West of Pittsburgh were represented by Vice-Presidents E. B. Taylor, D. T. McCabe, and G. L. Peck, and there were also present, President George W. Stevens, of the Chesapeake and Ohio Railroad; President J. M. Fitzgerald, Western Maryland Railroad; President L. E. Johnson, Western Maryland Railroad; Oscar G. Murray, chairman of the Board and President Daniel Willard, of the Baltimore and Ohio; President W. H. Truesdale, Delaware, Lackawanna & Western Railroad; President W. T. Noonan, Buffalo, Rochester & Pittsburgh Railway; Vice-Presidents Theodore Voorhees and A. T. Dice, of the Philadelphia and Reading Railroad, besides many prominent Philadelphians.

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"In the Midst of Life": A Statistical Story

By J. H. ROCKWELL.

IN a report recently submitted to Congress, the Inter-state Commerce Commission, in its discussion of disasters on American railroads, points out the fact that more than sixty-three per cent of all the accidents investigated during the past year, were caused by the blunders of employes.

From July 1, 1912, to June 30, 1913, the railroads of this country killed 10,585 persons and injured 169,538. These figures show an increase over the year 1911-1912, of 189 killed, and 19,379 injured, 16,386 were passengers, 143, 442 employes, in the current year, 318 were passengers, 3,685 employes and 6,632 other persons, indicating an increase of thirty-three in the total number of employes killed, a decrease of thirty-eight in the total number of passengers killed, and an increase of 194 in the total number of persons killed otner than passengers and employes. Of the persons injured, 16,386 were passengers, 143,442 employes, and 10,710 persons other than passengers and employes.

It was the annual slaughter of railroad men. The number has been increasing every year, and apparently there is no way of mitigating the deadliness of railway operation. Safety devices have failed to help much. In any event, you cannot make a 150-ton engine and a string of heavy cars "foolproof." And just there lies the trouble.

The employes are good enough men—most of them thoroughly experienced in their work—but they are inclined to "take chances." So the list of the dead and the injured lengthens yearly, because of heedlessness and hurry; they swing on and off the cars in motion when there is no remotest need of it; they crawl under cars without notifying an equally careless engineer of their intention, and an instant later they are worked up into red waste under the wheels of the train; and these are only a very few of the "chances" taken by these men almost hourly in the yards, on the trains and along the tracks of every great railway system of the country.

But railway officials are waking up. More than a year ago the Northwestern took up the matter of trying to keep their men from committing harikari under engine trucks and car wheels. The Frisco was the second road to fall into line and was closely followed by the Santa Fe and the Baltimore & Ohio; now almost every road of importance in the country, is concerning itself in this attempt to curb the foolhardiness of its employes. Every man, boy, veteran and apprentice in the shops and on the road, in the roundhouses and on the sections, has been told about his carelessness and what it costs in life and property, and is also given to understand that if persisted in, his carelessness will cost him his job.

It is the little things that are killing the men who run the engines and work in the yards and on the trains, and in the shops; and this the railway companies are also telling their men. Here are some examples furnished by the claims department of one of the great railways of the West:

Down at Cape Girardeau, Missouri, the Frisco road has a little turn-table installed in a roundhouse. Someone about the roundhouse fixed a stick with a nail in the end of it, to be used in hoisting the night light over the track running out on the "table." After the happy-go-lucky fashion that obtained there, the man who lit and hoisted the light, always threw down the stick on the deck of the "turn-table." It so happened that a hostler jumped down from the running-board of an engine one night, lit on the stick and rolled on over the deck into the pit beneath, breaking both wrists and otherwise damaging himself. This cost the railroad considerable money and practically disabled the employe for life. But the cases are legion. At Garfield, another Missouri town, an accident ocurred a few months ago, that resulted from "over-caution" thoughtlessly applied. The night operator set his red light against an oncoming pasenger train for which he had orders. To make doubly sure that the train stopped, he told his helper to step out and place a torpedo on the track.

The young man did so. He placed it exactly in front of the station platform, instead of walking a few yards down the track. A curious youth lounging around on the platform when the train pulled in was struck by a piece of the torpedo when it exploded and seriously injured. The injured young man, of course, demanded damages.

In Marshfield, Illinois, a careless baggageman left a truckload of cases containing empty soda-water bottles too near the track. There was a crowd of people on the platform waiting for a local passenger train laying in the yards until a limited passed through. When the limited came along the mail clerk reached out with a big crane for the mail sack hanging on a rack above the station platform. The crane ripped into the truckload of bottles, threw them in a welter and haze of broken glass, all over the platform. Two waiting passengers were struck by flying cases and very nearly killed.

For the purpose of showing train-men, and the general public, the dangers that lie in thoughtlessness, the management of the Frisco road had a number of photographs made exhibiting the dangers, of this character, as they occur almost every day.

The foolhardy brakeman who plays with death while adjusting a coupling, is given to see the foolishness of his actions. The switchman who swings himself through a string of cars while they are in motion, is pictured. The carelessly "kicked" car that goes rolling down over a grade crossing is shown about to smash an automobile with three or four persons in it. The brakeman who insists on standing between the bumpers of two cars while adjusting the couplings, is shown just how easily death may come to him.

"Railroad men," says an official of one of the largest railway systems in the West, "are inclined to be fatalists. They think they will be killed when their time comes, and not before, and hence their willingness to "take a chance." When they see a man cut into strings under a train, they do not think for a moment they will figure in such an accident. It is very much like the soldier who goes into battle secure in the belief that he will not be killed, even though half his company is certain to be wiped out.

"The whole purpose of this safety movement of ours, is to bring home to the men that they must

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help themselves. The statistics issued by the Inter-state Commerce Commission for 1912 show that 73.5 per cent. of all accidents to employes are caused by their own fault. The other 26.5 per cent. come from those causes that may be traced to some fault of the company. I was talking with one of the oldest engineers in the service, about this, and he admitted that the percentages were true."

At regular intervals there is a special train sent out by the roads that have adopted the safety idea, and on this train is a local safety committee. They are looking for instances of carelessness all over the division. At one station they may find a hole in the platform sufficient to throw a person down and injure him. At another station the stock-chute gates are open wide enough to rake a trainman off the side of a car and kill or cripple him for life. They see everything. Habitual carelessness that may result in a death some day, is remedied. The road pays the bills of the trip and the committee has the satisfaction of knowing that they have probably saved a few lives.

There is one thing that the public does not seem to understand, and that is that there is something more to railroading than the running of trains. There are deaths everywhere. Not long ago a car-tink out at Pittsburg, Kansas, crawled under a string of cars to fix the draw-gear of a number of them. It is a rule of every company—dictated by common sense—that the car repairer must put out a blue flag on the car on which he is working. If he does not he is apt to be ground into little pieces under the wheels of his car when a switch engine bumps into it, as it is likely to do any moment. The "car-tink" at Pittsburg failed to put up a blue flag and had both legs cut off in less than ten minutes after he went under the car.

It is quite true that "familiarity breeds contempt," even when applied to danger. After a man has crawled over and under flat cars, and box cars, and passenger cars, and gondolas, and cabooses for a few years without meeting with a mishap, he gets into the habit of taking chances and when he begins to do that he becomes more and more careless. One of these days he is brought into the division terminal with a part of his anatomy missing.

In the old "link-and-pin" days you could tell a railroad man at sight, and a good way off. He was usually short from one to half a dozen fingers, for in spite of every thing, the links and pins would nip them off. When the patent coupler was adopted, it was thought that the troubles of the brakeman were over. But he at once set about finding new ways of killing and crippling himself.

The number of passengers killed by railroads is steadily decreasing, while the number of employes killed is just as steadily increasing. The roads were confronted by a peculiar situation. They do not want to lose their best men—their really most efficient men. Here is an example of how even a veteran is apt to lose his life, and it can be duplicated a dozen times on any road in the country.

On October 28, 1912, a Frisco conductor gave his head brakeman a switch list. One car was kicked onto a passenger track and the brakeman in question threw the switch for the adjoining track, and turned the "derail." The car was cut off and the "go-ahead" signal was given. The next car was to be kicked back down the main line to the caboose. The brakeman walked along opposite the space between the last two cars as the engine and eleven cars moved out of the siding.

While the train was moving at a rate of about four miles an hour, he stepped in between the last two cars and gave the "go-ahead" signal with his left hand to the fireman. As the fireman looked back he saw the brakeman fall out from between the cars. An emergency stop was made and the crew ran back to find that both his legs had been cut off above the knee. He died within an hour. He had gone between the cars to close an angle cock, so that when the cars were kicked down the main line they would not stop when the air hose connection was broken. As he stepped between the moving cars he stumbled over the "derailer" that he, himself had turned only a moment before. Being given the switch list shows that he was considered a capable man, but he was probably in a hurry and took a chance, and, practically, committed suicide.

At Newburg, Missouri, a brakeman was killed in much the same way. He thoughtlessly walked between two cars to adjust the couplers at the exact moment the engineer decided to back up half a car length. As a result, the brakeman was caught squarely between the two draw-heads and was quite dead when they took him out.

Trainmen go to their death almost daily, knowing that they are doing the things they are forbidden to do by the rules and regulations of the road. They will go out of the station now and again, with hardly enough water in the engine boiler to get them clear of the yards. Six engines have been blown up on one road, in as many years, on account of the carelessness of roundhouse men and engineers, and in nearly every instance, the engineer and fireman have been killed.

It is these little acts of thoughtlessness that runs up the death list of railway employes. They become so accustomed to taking chances that it soon gets to be a habit, and they give the matter absolutely no thought whatever. This can be seen in the way they run their trains and do their work in the yards, and in the roundhouses. And they are a good deal more careless, it seems about their own safety, than they are about the safety of others. A study of the Inter-state Commerce Commission figures for the current year—or any year—will show this to be true. It is the heedlessness of the individual that hurts, and it is nearly always he that pays the penalty of his folly.

It is too often the case, however, that the passenger suffers instead of the offender, as in the instances cited of the exploded torpedo, and the flying soda-water crates. Another accident of this sort occurred near Kansas City. The station agent left five loaded baggage trucks standing on a platform between two tracks, and it was necessary for the passengers from one train to cross this platform, and the track beyond, in order to reach the depot. The tongues of the trucks, instead of being hung up to the fronts of the trucks, were left resting on the platform, a distinct violation of the rules governing the matter.

A woman got off a train coming up from the south; she carried a baby in one arm, and a suit case and a bundle with the other. It was in the

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night and the platform was dark. As she started for the station lights, some considerable distance from the platform, she tripped over one of the truck tongues and fell, seriously injuring both herself and the child she was carrying. It is such accidents as this that cause claim agents to very nearly use cuss words and demand somebody's head.

The examples we have given are only a very few of the more common cases of carelessness—or thoughtlessness—that lie back of almost two-thirds of all the railroad accidents investigated by the Inter-state Commerce Commission, and could be multiplied many times by claim agents in every part of the country. Of the other causes of railroad disaster many are shown to be due to defective equipment, bad roadway and excessive speed. Out of a total of 8,215 derailments, during the past year, 1,877 were caused by defects of roadway, and 3,847 were due to bad equipment, an increase over the previous year of 652 derailments due to bad roadway, and 1,023 due to bad equipment.

Excessive speed, although no exact percentage is given, has been responsible for a considerable number of train accidents, so largely so that the Commission declares that "conditions of safe operation are often ignored in the effort to bring fast trains in on time. This is a bad habit," it adds, "for which the traveling public is largely responsible. . . Adequate measures should be taken to compel low speed wherever conditions require it, whether schedules are maintained or not."

What the railroads are trying to do more particularly, however, is to show the "car-tink" that he owes it to himself to put out a blue flag when he crawls under a car; to impress upon the brakeman the fact that he can couple a car without adjusting the coupler with his foot while the cars are moving, and show the switchman the utter folly of hazarding the interests of himself, the road and his family by rollicking over and around, and under, and along the tops of gondolas, refrigerators and cattle trains, and to point out to engineers and conductors that carefulness and forethought, and a strict obedience to orders, is the price of safety.

Peril on the Railway*

By JAMES O. FAGAN.

TO the public, face to face with the details of the latest collision on the New Haven road, explanations and theories must now seem little better than insults. The unpardonable, inexcusable railroad collision is such a threadbare subject for discussion. A thousand times the thing has been riddled with investigation, and perforated ineffectually with "probes to the bottom." Yesterday a friend on the street fairly hissed in my ear these terrible question marks: "Bridgeport? Westport? Corning? Stamford? North Haven?" I could not answer him. Opinions and arguments are so much wind. The horror itself is the only indisputable fact in the situation. This much, however, in a general way, we do know: In this bountifully favored section of the United States, where sympathy for all classes of workers is keenest and kindest, where brains are brightest, where social and industrial aspirations are bravest, these avoidable operating disgraces seem to be the distinctive contribution of railroad men to the exchequer of human progress.

Sorrow and indignation very naturally accompany a distressing situation of this kind. Specifically for railroad men it is indeed a shameful state of affairs. While contributing causes are doubtless many and powerful, the indictment itself is flawless. For wreck solutions and safety matters in general are, first of all, problems for railroad men. The public understands very little about such matters. Railroad men, from train men to managers, are engaged in a technically strange business. To the people their operating language is a foreign tongue. They work by means of signs, codes and schedules. To the average outsider their tools and equipment are so many figures of speech. Consequently travelers who go out on the rails in coaches are absolutely at their mercy. It is well, then, that they, managers and employes, should take these collisions intensely and humanly to heart. I say there is shame as well as sorrow in the situation for them. God willing, "tears, perhaps for blood."

In the past, at any rate, the people have given this railroad world of which I speak a free hand. On the whole, constructively and humanly, as times and manners go, public confidence in the railroads has been well placed. Abuses of all kinds are giving way to the pressure of public opinion. In fact the only public abuse on railroads that seems still to thrive amid the general uplift is this horrible leak in the safety department. For the discovery and stoppage of leaks in the railroad service investigations are at all times rightfully in order. Every form and degree of probe known to constituted authority has in this way from time to time been brought into service. The investigators have been coroners, public utility bodies in various states, and the Interstate Commerce Commission. Confining myself to the trouble on the New Haven Railroad, I think I am right in saying that the people have been led to believe from the various verdicts and findings of these investigators that the leak in the safety department of this particular railroad is in the main of a mechanical or financial nature. Specifically the reports and findings of the Interstate Commerce Commission have conveyed to the people the impression that train collisions on the New Haven can be accounted for not exactly in terms of faulty equipment, but of equipment that might, could, or should be improved upon. If space and emphasis in these reports mean anything, the public is justified in thinking that remedies and improvements are to be worked out fundamentally along these mechanical lines. The sooner this erroneous impression is headed off and stamped out, the better for the traveling public.

As a matter of fact, every man who works or who ever has worked on a railroad knows in his heart and can tell these investigators that, absolutely regardless of the nature of the equipment, there has been one startling and all-important feature common to one and all of the wrecks we

*Published in the New York Times.

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are considering, and that feature is universally known as "taking chances." Americans are the greatest chance-takers in the world. George Washington set the example. In every-day life it spells daring and courage; on the railroads, in any shape, it is a crime. It means short flagging, reckless running in fogs as well as careless supervision by conductors and officials. Specifically, whatever else has been the matter, it has been responsible for the string of fatalities on the New Haven Railroad, from that at Bridgeport to the wreck at North Haven. It will continue to be an ever-present menace to the safety of travel on all railroads until coroners, commissioners and the general public acknowledge its all-absorbing importance and give to it the attention it deserves.

Taking chances on railroads, I say, is something that every American can understand. The trouble must be dealt with by investigators and by society on a broad, human basis. For ever so many years in the past corporate bodies in this country have been taking chances with the credulity of the people. They are not taking many now. It is but fair to say that the Interstate Commerce Commission has now got into working order between the railroads and the people a business intercourse upon a wide moral basis. It is now up to this same Commission and to constituted authority everywhere to treat labor on the railroad in its relation to the safety problem from the same patriotic point of view. The Interstate Commerce Commission has established an atmosphere of square dealing in matters relating to traffic. Let them now go to work and establish, as best they can by word and deed, an atmosphere of personal responsibility from top to bottom in the train service. To do this fairly and squarely the Commission must not shut its eyes to the necessities and facts in the case. Accidents are fewest on railroads when loyalty is strongest, where discipline is fairest and firmest and where a public-spirited management has the moral support of a vigorous and healthy public opinion.

The other day railroad managers all over the United States were notified by the president of the Brotherhood of Railway Trainmen substantially to the effect that when there happens to be a difference of opinion between an officer and a trainman as to the interpretation of instructions in the schedule the orders of the officer in relation to the point in dispute must be disregarded, and the brotherhood will be prepared to protect the trainmen who may be disciplined for their disobedience.

What show have the doctrines of personal responsibility and co-operation between men and managers when the rank and file are being continually prodded with demoralizing orders of this kind by irresponsible labor leaders?

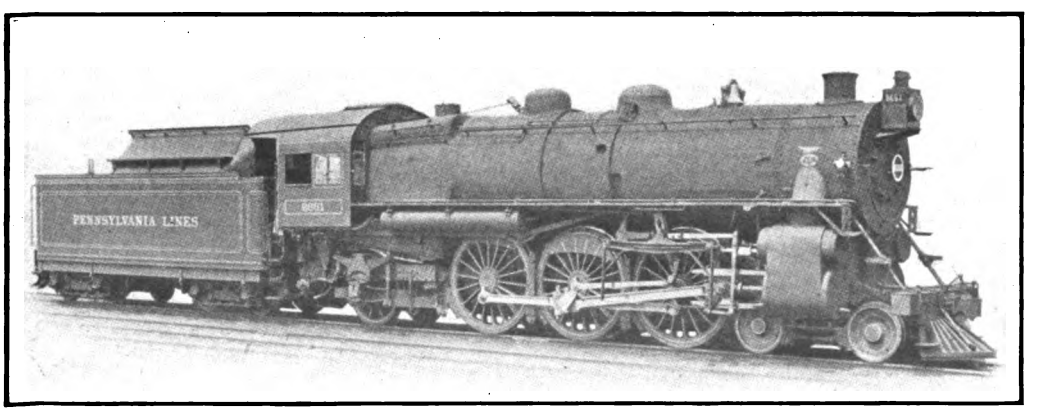
The Baldwin Locomotive Works Completes Its Forty Thousandth Locomotive

IN commemoration of the completion of its forty thousandth locomotive, the Baldwin Locomotive Works has published a highly artistic booklet containing a historical sketch of the development of this great industrial enterprise. To quote from the publication:

"The Baldwin Locomotive Works, after eighty-two years of continuous operation, has completed its forty thousandth locomotive. The event is one of peculiar interest, as it marks an epoch in locomotive construction. The first locomotive built by these works was completed in 1832, when locomotive building was in its infancy; while number 40,000 represents the latest type of motive power for high-speed passenger service. A study of the product of The Baldwin Locomotive Works is a study of the development of the American locomotive, from its earliest beginning down to the present time.

"The principal facts connected with the history of The Baldwin Locomotive Works are well-known, and will not be repeated here; but a brief review of locomotive development, as illustrated by its products, will be of interest as preliminary to the description of locomotive number 40,000.

"Although the Baldwin plant has always ranked among the largest of its kind, its facilities during the early years of its existence were exceedingly meager when compared with what they are today. It was not until 1861—thirty years after



THE FORTY THOUSANDTH LOCOMOTIVE BUILT BY THE BALDWIN LOCOMOTIVE WORKS.

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FRONT VIEW OF THE BALDWIN LOCOMOTIVE WORKS FORTY THOUSANDTH LOCOMOTIVE.

the founding of the works—that locomotive number 1000 was completed. During this period, there were introduced several features that are still characteristic of American locomotive practice. These included bar frames, outside cylinders placed horizontally, equalized wheel loads, and a design of boiler which, while small and of relatively low power, had many features in common with present practice. The use of the Stephenson link motion was, in 1861, almost universal; and this device is being applied to many new locomotives, although on heavy power it is being generally replaced by some form of external gear, of which the Walschaerts is the most extensively used.

"The five thousandth locomotive was built in 1880—nineteen years later. During this period two important types of freight locomotives, the "Mogul" and "Consolidation," were introduced and widely adopted. Passenger traffic was almost exclusively hauled by locomotives of the "American" pattern, having two pairs of coupled driving wheels and a four-wheeled leading truck—a type first built by Mr. Baldwin in 1845, but whose actual introduction dated from 1836.

"During the decade following the building of locomotive 5000, the annual production increased rapidly; and locomotive number 10,000, a heavy Consolidation for the Northern Pacific, was built in 1889. This period was characterized more by the enlargement of types previously in use, than by the introduction of locomotives of radically new patterns. Mention should be made, however, of the Decapod (ten-wheels coupled) type of locomotive, several examples of which were built by the Baldwin Locomotive Works during this period.

"The years 1889 to 1902, when locomotive number 20,000 was built, were characterized by the extensive use of compound locomotives, and also by the introduction of trailing wheels for the purpose of allowing increased boiler capacity without imposing excessive loads on the driving wheels. This feature of design was most prominent in the Atlantic type, originated by the Baldwin Locomotive Works for the Atlantic Coast Line in 1895. This design achieved immediate success, and Atlantic locomotives were adopted by many of the leading railways, for express passenger service.

"The wide firebox, with trailing wheels, was also incorporated in the Mikado type, having four pairs of coupled driving wheels with two-wheeled front and rear trucks. The first examples of this type were built by the Baldwin Locomotive Works in 1897 for the Nippon Railway of Japan; hence the name "Mikado" which was applied to the design. These engines were used in freight service, and achieved great success because of their high hauling and steaming capacity. The type was subsequently adopted in the United States, and "Mikado" locomotives are now being used in heavy, through freight service on many of the leading railways of this country.

"The average annual production, for the five years beginning with 1902, was approximately 2000 locomotives; and locomotive number 30,000 was built in 1907. A notable feature of this period was the introduction, on American railways, of the Mallet articulated compound locomotive. By transmitting the power to two groups of driving wheels, independently rotated, it was possible to greatly increase the tractive capacity of individual units; and the Mallet locomotive proved an effective means of increasing tonnage rating, and reducing transportation expenses, on lines having heavy grades. The period under consideration was also notable because of the large number of balanced compound locomotives built for high-speed service. It likewise marked the beginning of successful superheating in American locomotive practice. Another event of importance was the extensive introduction of the Walschaerts valve motion. This gear is placed outside the wheels, where it is easily accessible for oiling and inspection. This leaves room, between the frames, for a substantial system of cross-bracing; an important advantage, especially on heavy power.

"And now the year 1913 has witnessed the completion of the forty thousandth locomotive. Since the building of locomotive number 30,000, there has been a material increase in the weight and capacity of locomotives used in all classes of service; and the period has been marked by the extensive use of superheaters, brick arches and other devices for the purpose of improving locomotive efficiency. The mechanical stoker is another accessory which has been developed during the past few years.

"It is a notable fact that the locomotive, in its development, has reflected the demands made upon it, and has been steadily enlarged and improved to meet them. Increased train loads, higher speeds, and the absolute necessity of conducting the traffic in the most economical manner possible—these are some of the factors responsible for the production of locomotives which can well be described as self-propelled power plants. Such locomotives have proved themselves capable of developing more than 2000 indicated horsepower, and when their restricted over-all measurements are considered, this is certainly a remarkable output. Factors other than a mere increase in size have been responsible for these results. They have been accomplished by specially designing the locomotives for the work to be performed; by the use of superheated steam, and of boilers and engines of improved efficiency; and by the application of various labor-saving devices.

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A Comparison Between Capitalization and Cost of American Railways

By SLASON THOMPSON
DIRECTOR, BUREAU OF RAILWAY NEWS & STATISTICS.

WHAT about overcapitalization?" "What about watered stock?" and "What about exorbitant dividends?" are the current questions with which every plea for a fair deal to American railways is met.

248,888 miles of operated line:	
Total capital stock and funded debt	$19,694,987,553
Capital stock and funded debt owned by roads	5,037,442,484
Net capital	$14,657,545,009
Per mile of line owned (238,300 miles)	$61.508
Per mile of track owned (341,782 miles)	41,204

Is this overcapitalization? Compare the figures per mile with those of European railways.

Perhaps the skeptical reader may question the propriety of deducting $5,037,442,484 for the stocks and bonds in the railway treasuries. Well these stocks and bonds were paid for out of the total issue of securities, and in the year 1912 the roads reporting to this Bureau received no less than $257,121,010 from other income, nearly all of which came from these stocks and bonds. This is over 5 per cent. on the securities owned.

Perhaps the reader is skeptical about the returns to this Bureau. Well in 1911 the Interstate Commerce Commission reported that $308,881,892 "other income" had been received by all the operating roads, and in 1910, $252,219,946 was received from "other income," over 80 per cent. of which was dividends and interest on securities "owned or controlled."'

So the overcapitalization and watered stock bogeys are relegated to the limbo of falsehoods to which demagogues chiefly resort for their so-called facts.

ACTUAL DIVIDENDS.

And now what about the exorbitant dividends?

The 386 roads reporting to this Bureau operating 236,444 miles in 1912 had $7,016,703,076 capital stock and owned $3,136,345,433 caiptal stock in operating and leased roads. The revenues from operation of these roads amounted to $2,806,177,194, the largest in their history. After paying operating expenses, taxes, rent of road interest, reserves for depreciation and betterments, deficits of weak companies which amounted to $32,986,563, and miscellaneous deductions, all they had left of these enormous receipts for dividends or anything else was $60,314,175.

But these 386 roads did pay $246,621,701 dividends on common and preferred stock.

How did they manage it?

Why out of the $257,121,010 "other income," mostly from the $3,136,345,433 railway capital stock owned by them. They simply paid dividends out of dividends received.

As a matter of fact the net dividends paid out of operating revenues and rental of leased lines in 1912 did not amount to $200,000,000.

The total interest and dividend charge on the operating revenues of the railways of the United States in 1912 did not amount to $500,000,000, which is only 3.42 per cent. on their net capitalization.

NET CAPITALIZATION IN 1912.

Following the formula adopted by Prof. Henry C. Adams when official statistician for the Commission to ascertain the only capitalization that "measures the claim of railway securities of railway revenues," the returns to this Bureau from 236,444 miles of operated line (196,831 owned and 39,613 leased) yield the following result for the year ended June 30, 1912:

SUMMARY SHOWING CAPITALIZATION OF 386 COMPANIES OPERATING 236,444 MILES OF LINE FOR THE YEAR ENDED JUNE 30, 1912.

Item—	Capitalization (196,831 Miles Owned) 1912	Capitalization (236,444 Miles Operated)
Capital stock	$7,016,703,076	
Funded debt	9,588,164,232	
Receivers' certificates	8,835,913	
		$16,633,703,221
Rental 39,613 miles, at 5%	$130,023,906	2,600,478,140
Total		$19,234,481,361
Less—		
Deductions for railway stock owned	$3,136,345,433	
Deduction for funded debt owned	1,901,097,051	
		$5,037,442,484
Net capitalization, 1912 (236,444 miles)		$14,196,738,877
Net capitalization per mile operated		60,043

Besides the railway stocks and bonds reported as owned by the companies included in this statement on June 30, 1912, they owned $678,060,706 stocks and $198,878,377 bonds other than railway issues and $154,312,034 miscellaneous securities. The income from these $1,027,251,117 securities, amounting to over $35,000,000, relieved railway revenues of just so much of their capital charge.

NET CAPITALIZATION OF ALL RAILWAYS 1912.

Accepting $14,196,738,877 as the net capitalization of the 236,444 miles of line reporting to this Bureau it only remains to place a reasonable estimate on the 12,444 miles not covered by such reports in order to arrive at a close approximation of the net capitalization of all the railways in the United States. Estimating this

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as high as $40,000, where $30,000 would be liberal, the account would stand:

SUMMARY SHOWING NET CAPITALIZATION OF ALL THE RAILWAYS IN THE UNITED STATES ON JUNE 30,1912.

Net capitalization 236,444 miles shown supra	$14,196,738,877
12,444 miles not represented at $40,000 per mile	497,760,000
Total for 248,888 miles of operated line	$14,694,498,877
Less assigned to other properties in 1910	36,953,808
Net capitalization of all railways in United States in 1912	$14,657,545,069
Net capitalization per mile of line	61,508
Net capitalization per mile of track	41,204

CAPITALIZATION OF FOREIGN RAILWAYS.

If anything were needed to demonstrate the remarkably low figure at which American railways have been built, equipped and financed, it would be supplied by the next statement, which gives the capital cost or cost of construction of the railways of the principal foreign countries compiled from the latest available sources :

SUMMARY OF CAPITALIZATION OF PRINCIPAL FOREIGN RAILWAYS.

Year.	Country. Europe—	Miles Line.	Capital or Cost of Construction	Per Mile.
1911	Un. K'dom	23,417	$6,447,969,398	$275,354
1910	Ger. Emp.	36,740	4,163,615,519	113,326
1908	Rus. Em.*	41,888	3,378,839,810	80,902
1909	France ..	25,017	3,593,660,000	143,648
1910	Austria ...	14,038	1,654,207,119	117,837
1910	Hungary ..	12,821	858,732,000	66,977
1910-11	Italy** ...	8,908	1,131,300,000	126,886
1907	Spain** ..	8,980	692,818,000	77,151
1908	Portugal ..	1,465	162,385,280	110,830
1909	Sweden ...	8,366	277,952,716	33,224
1911	Norway ...	1,891	81,467,176	43,087
1911	Denmark**	1,215	70,277,640	57,841
1910	Belgium ..	2,685	504,210,184	187,787
1910	Netherlands	1,978	163,798,304	82,810
1910	Switzerland	2,924	341,208,367	116,692
1911	Roumania .	2,153	186,670,372	86,702
1909	Servia** .	350	31,440,000	89,830
1909	Bulgaria**	1,048	60,113,551	57,456
	Total Europe ***	195,884	$23,800,664,235	$121,453
Year.	Other Countries—	Miles Line.	Capital or Cost of Construction.	Per Mile.
1912	Canada ..	26,727	$1,585,724,797‡	59,330
1909	Br. India.	32,099	1,448,700,000	45,135
1910	Ar. Rep.§	17,381	868,914,950	49,981
1911	Japan** .	4,767	411,598,253	86,343
1912	N. S. Wales‖	3,831	260,613,180	68,288
1911	N. Zealand‖	2,761	153,448,880	55,574
1911	Queensl'd‖	3,929	132,982,560	33,820
1911	Victoria¶ .	3,505	206,804,550	59,000
1912	U. S.	248,888	14,657,545,069	61,508

*Includes Asiatic Russian railways.
**(State).
***Including Asiatic Russia.
‖New South Wales railways are 4 ft .8½ in. gauge; New Zealand and Queensland 3 ft. 6 in., and Victoria (all but 121 miles) 5 ft. 3 in.
‡Including government subsidy.
§About two-third 5 ft. 6 in. gauge, remainder 3 ft. 3½ or 2 ft. 6 in. gauge.

Japan affords the latest illustration of how capitalization of railways can be swelled through government ownership. Under private ownership Japan's railways were capitalized at $42,800 per mile. When taken over by the state their capital was increased to $78,820 in 1909, to $83,220 in 1910 and to $86,343 in 1911. Jonah's gourd was the Eastern prototype of Japanese state railway financing. But it must be admitted that the Germans set the example. Twenty-one years ago (1891) Germany's railways were capitalized at 250,390 marks per kilometer, in 1900 at 270,455 marks and in 1910 at 292,753, or an increase of 42,363 marks per kilometer, or $16,246 per mile in nineteen years. An American contractor with German labor at Japanese wages could build and equip the entire German railway system, ex land damages, for $16,246 per mile. However, in the matter of railway financing the Germans are phlegmatic people compared to the vivacious modernized Japanese.

COST OF CONSTRUCTION.

No feature of the railway statistics is more illusive than that which attempts to get at the investment in road and equipment. In 1910 the Commission, after excluding switching and terminal companies, than which there is no more essential, inseverable and expensive railway investment, arrived at $14,387,816,099 as the net investment in road and equipment for 226,114 miles of line. This figure was incorporated in the official balance sheet for that year.

From the returns of this Bureau, identical with those made to the Commission for the year 1912, the following statement of the investment in 236,444 miles of operated line has been compiled:

COST OF ROAD AND EQUIPMENT FOR THE YEAR ENDING JUNE 30, 1912 (236,444 MILES OF LINE REPRESENTED).

Item—	Amount.
Investment in road (196,831 miles represented)	$8,062,975,146
Investment in equipment	1,919,756,292
Investment unsegregated	2,913,474,712
Total investment reported	$12,896,206,150
Rental of 39,613 miles of line capitalized at 5 per cent.	2,600,478,140
Total 1912	$15,496,684,290
Total 1911 bureau	15,251,636,991
Total 1910 official balance sheet	14,387,816,099

The reader hardly need be told that these figures do not come within billions of representing the first investment in American railways. He has seen in the chapter on equipment how that item, which has been practically replaced during the last fifteen years, must have cost, at a reasonable estimate, about $3,500,000,000. The accounts so far as kept show that equipment has cost less than 20 per cent. (19.24) of the total. Applying this percentage to the known cost of equipment would indicate about $18,000,000,000 as the actual cost of railway property up to June 30, 1912.

Moreover, there is no means of even approximating the millions upon millions expended since the inception of railways eighty years ago upon lines whose records, if ever kept, have been lost or which have gone through receivership and reorganizations which have overtaken 131,000 miles of American railways whose capitalization reaches nearly $8,000,000,000.

Nor does it include the appreciation of railway property, especially at terminals, during the past three-quarters of a century. There can be no claim that there is any "unearned increment" about such appreciation, for it is the creation of the railways. The rail has brought increase of billion upon billion to the land value of almost every State in the Union.

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PHYSICAL VALUATION OF AMERICAN RAILWAYS.

Now that both branches of Congress have yielded to the agitation for a physical valuation of the railways, for which there is no valid reason, except clamor based on the false popular impression that there is some definite relation between rail investments and rail rates, it is timely to recall that up to date every valuation made by hostile appraisers has demonstrated the excess of values to capital securities.

The following statement gives the results of official State valuation of railway property in Washington, South Dakota, Minnesota and Wisconsin:

Steam Railroads of	Cost of Reproduction	Present Value.	Capitalization.
Washington	$194,057,240	$175,797,025	$161,582,000
So. Dakota.	106,494,503	91,695,132	109,444,600
Minnesota .	360,961,548	309,706,514	300,027,676
Wisconsin ..	296,803,322	240,718,711	225,000,000
Total	$958,316,613	$817,917,382	$796,054,276

Since these valuations were made the State Board of Equalization of Washington has placed an aggregate valuation of $342,515,593 on the property of the steam railroads of that State, or nearly double the "present value" found by the Railroad Commision seven years ago.

In 1910 the railways in Wisconsin paid $2,858,000 taxes. If the railways of Wisconsin are getting a square deal with other taxpayers, this indicates that the value of their property is over $500,000,000.

In February, 1911, a commission appointed by the Railroad Commissioners of Massachusetts to value the assets and liabilities of the New York, New Haven & Hartford Railroad Company made the following finding:

Appraised value of all property	$495,759,638
Liabilities validated	394,145,564
Adjustment surplus	$101,612,074

During the past year a physical valuation of the transportation property of the Lehigh Valley Railroad, exclusive of the coal lands and collieries, has been made by an engineering and accounting force unconnected with the company's staff. The detail figures have not been published, but the result is known to be in the neighborhood of $300,000,000. To this should be added company investments in railway securities valued on their income at over $20,000,000, making a total of over $320,000,000 against a capital charge of $147,113,669.

The railroads have good reason to welcome a physical valuation of their property, as it will forever lay the bogey of overcapitalization. It will serve no other useful purpose except to put an appropriation of several millions at the disposal of the commission or whoever appoints the appraisers.

Recent Railway Developments in Europe

FROM OUR LONDON CORRESPONDENT.

A Superheater at Ghent.

AMONGST the most interesting stands in the railway section of the Ghent International and Universal Exhibition, Belgium, was that of the Locomotive Superheater Corporation on the stand of the Great Central Railway Company of Great Britain. This superheater is the invention of Chief Mechanical Engineer Robinson of this railway. It has a header or steam collector with transverse compartments and removable front cover plate for header with longitudinal compartments and removable top covers. An advantage in the construction is the elimination of flanged or special joints for connecting the elements to the header, the Robinson pipes being expanded directly into the header. It is claimed that the superheater will attain as much superheat as that of any high temperature locomotive smoke tube superheater under equal conditions. The superheated and saturated steam compartments are open at the front of the header to permit of internal examination, and for the introduction of tube expanders into the ends of the superheating pipes which are easily disconnected from the header by using appropriate tools. These superheating pipes or elements, whilst being readily disconnected from the header without sustaining any damage, can be re-expanded into the header. A saving in coal consumption of 25 per cent, water 30 per cent, boiler repairs 20 per cent is claimed for this apparatus, with an increased hauling capacity compared with similar engines using saturated steam and with a boiler pressure of 20 pounds per square inch greater than those engines that use superheated steam at an average working temperature of 650 degrees F.

Oil Locomotive Engines.

A GOOD deal of attention is being devoted in various parts of the Continent to the utilization of oil engines for locomotives, mainly by means of an electric drive, but also to some extent with direct-coupled motors. In Sweden and Norway comparatively small locomotives on the Diesel electric system have been employed for some considerable time and appear to have met with success. They are utilized for small and light trains, and consist of a Diesel engine of about 75-100 horsepower coupled direct to a dynamo, which delivers its current to two direct current motors coupled to the driving axle. It is stated that a considerable reduction is obtained in the fuel cost, which is about one fifth, or even less, of that required in the case of the steam-driven locomotive.

On the Prussian State Railways a large locomotive driven by oil engines and built by the firm of Borgis is now in service. A Sulzer four-cylinder two-cycle engine is used, the two pairs of cylinders being set at right angles, with the scavenge pump arranged vertically and driven off the crank shaft. The locomotive weighs 95 tons (one ton equals 2,240 pounds) ready for service, and at a speed of 60 miles an hour for which it is designed the engine makes just over 300 revolutions per minute. Special arrangements are made for

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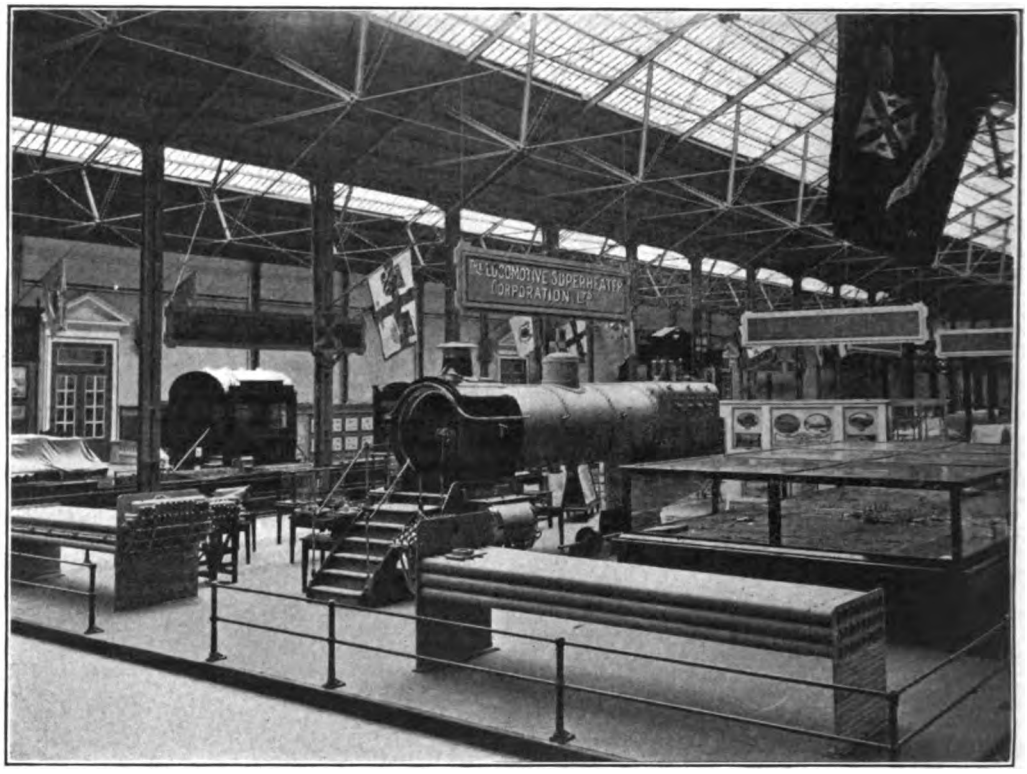

A SUPERHEATER LOCOMOTIVE OF THE GREAT CENTRAL RAILWAY COMPANY OF GREAT BRITAIN, EXHIBITED RECENTLY AT THE GHENT, BELGIUM INTERNATIONAL AND UNIVERSAL EXHIBITION.

the employment of compressed air at starting to give the machine a speed of about six miles an hour before it is run on fuel. A large amount of air storage is therefore necessary, and the locomotive contains a series of air reservoirs for this purpose. For working the air compressor a separate 250 horsepower two-cycle Diesel engine is employed. The main engine is, of course, directly reversible, the system employed being very similar to that adopted in the case of marine engines.

The locomotive has been in operation since the end of last March and satisfactory accounts of its working have been received. Not only has it been used experimentally, but from time to time has been put into the ordinary service and kept to the proper time table. It is understood that it will be run in this way for about a year, after which the decision will be made whether further locomotives of the kind shall be ordered by the Prussian State Railways.

A state train consisting of two motor coaches, each equipped with a petrol or benzol electric set, has been supplied by the A. E. G. of Berlin to the Khedive of Egypt. The coach bodies, which were constructed by the Metropolitan Carriage, Wagon and Finance Company, of Birmingham, England, have a length over buffers of 60 feet and 63 feet respectively, and the total weight of the train is approximately 100 tons without passengers. Each coach is mounted on two two-axle bogies trucks, and the benzol electric sets are carried on the two end trucks, the electric motors being on the central trucks. The engines give a continuous output of 120 horsepower at 700 revolutions per minute. Compressed air is employed for starting, and the fuel feed is effected by some compressed neutral gas, such as nitrogen or carbon dioxide. Each coach is provided with two series wound auxiliary pole motors, each with an hourly rating of 80 horsepower at 300 volts, which work on the axles through gearing having a ratio of 1 to 2.6. The control and speed regulation are on the Ward Leonard system, and arrangements are made so that the train can be driven from the driver's compartment at either end. The motor circuits in the two coaches are distinct from each other, and each generator supplies only the motors in its own coach. The maximum service speed is 40 miles an hour on the level.

Electric Waves for Train Control.

EXPERIMENTS have been made recently on the Bavarian State Railways with the use of wireless electric waves to stop the trains according to a system invented by Herr Christopher Wirth. The apparatus is placed in one of the wagons, preferably in the luggage van, on the roof of which is installed the aerial wire or antenna. Any telegraph or telephone line running alongside the railway may be used as the transmitting antenna, without interference with the telegraph or telephone service The apparatus can transmit a sound or light signal to the engine driver or can operate the Westinghouse brake directly. It can also be arranged to cut off the

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steam. It is suggested that, according to local conditions, sending stations should be installed at intervals of 80 km. to 100 km. The experiments were carried out on the Nuremburg-Grafenberg line, in conjunction with the Bavarian Railway Department, who, it is stated, regard the scheme as likely to prove useful in reducing the risk of railway accidents.

Steel and Timber Sleepers.

OWING to the scarcity of wood in Belgium, the Belgian railways are obliged to import nine tenths of the timber used for sleepers mostly from Russia. The yearly consumption amounts to about 750,000 sleepers, chiefly of white oak. The maximum price quoted by the Administration is 7.50 francs each, treatment with creosote being included. The Railway Administration has on various occasions been urged to employ steel instead of timber sleepers, and the results of tests that have been made are stated to have proved satisfactory. But, according to a recent official declaration, the use of steel sleepers would not in all cases be an economy. It is stated that a steel sleeper strong enough for the Belgian lines with heavy traffic would cost at least 12f. and its life would probably not be equivalent to that of the timber sleepers at present used, which have been found to last from 18 to 20 years on the main lines, and subsequently for the same number of years on secondary lines. It is claimed, however, that the adoption of steel sleepers would provide the Belgian rolling mills with a new source of employment, as so far they have not regularly engaged in this branch of manufacture.

Passenger Tank Engine.

THE Ateliers Metallurgiques at Tubize have under construction a new tank locomotive, type 13, which is the latest model to be put in service by the Belgian Railway Administration, and is designed to haul heavy passenger trains on secondary lines. The engine is of the six-coupled double-bogie type and has four cylinders (two outside and two inside) with a diameter of 420 mm. and a stroke of 640 mm. The boiler working pressure is 12kg. per sq. m. The heating surface is, in firebox 16 sq. in and in tubes (189 in number) 123.6 sq. m., or a total of 139.6 sq. m. The superheating surface is, 30.15 sq. m. the grate area, 3.15 sq. m., the diameter of the coupled wheels 1,800 m. on tread, and the diameter of the bogie wheels 990m. The capacity for fuel is six tons, and for water 14 tons.

A Naphthalene Locomotive.

THE Creusot works in France have just constructed a locomotive which is driven by naphthalene. Its total length is 5.80m., and its adhesive weight 18 tons. The motor has four cylinders cast in pairs, with a bore of 140mm. and a stroke of 200mm. and develops 70 horsepower at 950 revolutions per minute. Two carburettors are employed, one for starting on spirit and the other for running on naphthalene. The latter is in one piece with the reservoir in which the naphthalene is melted, the whole having double walls, between which the cooling water circulates. This water is maintained at 100 deg. C. and thus the melting is carried out at a constant temperature, which would not be the case if the exhaust gases were used for the purpose. The cost of running is about 0.05f. per horsepower hour, including the spirit consumed in starting. The locomotive is fitted with the Hautier erothermic transformer, which works with air compressed adiabatically and gives infinitely variable transmission between the motor and the driving axle. Among the advantages claimed for this device are better utilization of the engine, increased power on hills, diminution of the stresses on the various working parts, and considerable recuperation of energy on descents. It is thought that the naphthalene locomotive should find an advantageous field of employment in regions where water is scarce or of bad quality, and that it should be suitable for military applications because of the readiness with which it is started, the comparative lightness of the fuel to be carried, and the absence of smoke that might reveal the presence of a train.

British Developments in Railway Freight Handling at Terminals.

THERE has been much talk of late of a scheme for a central clearing house in London to receive and distribute railway goods. On July 16 the promoters gave a demonstration of the mechanical side of their project. If adopted the scheme would revolutionize the terminal handling and cartage of goods. It would abolish all goods yards and would substitute machinery, mostly automatic, for the goods porter and his barrow. The proposed clearing house might in fact be described as a central depot where the shunting would be vertical and the sorting automatic.

There are eleven railway companies in London, owning 74 goods stations and receiving about 320 goods trains every twenty-four hours. These 320 trains require over 700 other trains daily merely to sort the various railway wagons and convey them to other goods stations or shunting yards. At each of these stations the bales of goods in a railway wagon are sorted into various delivery vans by porters with hand trucks.

Under the proposed new scheme all these goods trains from every company would run straight into the central clearing house. This would be a seven story structure, with two levels under the street and four above the street. Immediately below the street level would run 24 railway tracks —the berths for the goods trains loading and unloading. These would be parallel to each other, and would run from end to end of the clearing house. On the street level twelve road bridges at intervals would cross above the railway lines at right angles running from side to side of the clearing house. These would be the berths for carts and road vehicles loading and unloading. Below the railway level would be a cellar. Above the road bridge level would be four sorting floors. The goods would be lifted and lowered from the carts and trucks by cranes.

If the system were carried out in ideal completeness railway wagons and road wagons would consist of a standardized chassis, with a standardized detachable body which would fit either one or the other. The trains would then run into the clearing house. The cranes would lift the

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body of the wagon with its load bodily. If it was a bulk load for one consignee it would be transferred direct by the crane from vehicle to vehicle in one lift, or if it had to wait for the arrival of its train or road wagon it would be lowered bodily into the cellar. If on the other hand, it consisted of a mixed load of goods for various consignees and various places it would be raised to one of the sorting floors.

As a matter of fact, the standardized detachable body would mean too big a change of rolling stock to be adopted at once or for a long time to come. In the meantime the system is adapted to present rolling stock by the use of what the projectors call "containers." Every railway truck load would have to be in a container, which might be anything according to the nature of the goods —a chain, a rope sling, a skip, a crate, or a complete box like a small furniture van, with doors at the sides and ends. For general goods this last form of "container" would be the usual one. It would be in these containers that the goods would be lifted from the trucks to the sorting floors, and when sorted they would be packed in containers again for transfer by crane to truck or wagon.

It is in the equipment of the sorting floors that the mechanical devices are most elaborate. Of the four floors two would be for heavy bales up to about fifteen pounds. Round and alongside each floor would run endless trains of machines called "truckers"—flat-topped trucks moving continuously at three miles an hour. Each trucker holds a tray which bears the good. These trays slide automatically without concussion on and off the truckers at the various despatching and receiving stations round the floor. Each sorting floor is divided into compartments called "bays," at each of which goods for a particular town are delivered by this sorting machinery. The whole of this sorting machinery is automatic and electric. Once the goods are sorted and loaded on to a tray, the tray is automatically drawn on to a trucker and taken to the proper bay, whether on the same floor or on some other, where it automatically slides off the trucker.

The progress of a bale is as follows: Lifted in a container from road or rail, it is taken out by a laborer and placed upon a tray. An operator reads the address, presses two or three electric buttons, and closes one switch. All the following operations are then purely automatic. The first empty trucker that passes takes the tray and notes electrically at which receiving station it is to discharge it. This station may be on the same train or belt of truckers, or it may be on a different belt and on a different floor, but even in this case the transmission is automatic throughout. On each floor there are six belts. Passing bays, trays, are taken from one belt to another by a main belt on the upper floor by lift belts. A tray may, therefore, pass from a lower despatching bay to a slow belt, from this to a fast belt, from this to a lift belt, from this to the upper fast belt, and from this to the slow belt which passes the required receiving station, and through all these transfers the address is transmitted from trucker to trucker, and the tray is transferred without shock. The bales and parcels assembled in this way at a receiving station are packed in a container, which is lowered by crane to a road or rail wagon leaving for the corresponding destination.

It is quite obvious that this method of handling goods traffic would have a great effect in clearing the streets of London of heavy traffic. Instead of a dozen railway companies delivering goods, each with their own vans, to precisely the same places, one delivery with one set of vans would do the whole work. The promoters hold that it would reduce the congestion of the streets by 70 per cent.

Personal

Correction.

THROUGH a typographical error, Mr. J. M. Hannaford was reported in the September issue of the Railway World as having been elected president of the Great Northern Railway instead of the Northern Pacific. It is a matter of regret that this mistake occurred, and it is hoped this notice will correct any erroneous impression derived therefrom.

H. M. Biscoe.

HOWARD M. BISCOE, who was recently appointed Vice-President of the N. Y. C. & H. R. R. R. Co., in charge of the Boston & Albany Railroad, was born in Westboro, Mass., July 3, 1869, and after attending the public schools entered Yale College and graduated in the class of 1892. He entered the service of the Boston & Albany Railroad as clerk in the freight department at Boston in December, 1892 and, except for a few months when he was employed by another railroad, he has served that company continuously ever since.

In 1893, he was appointed Foreign Freight Agent of the company at Boston; in 1905, General Freight Agent in February, 1910, Asst.

H. M. Biscoe.

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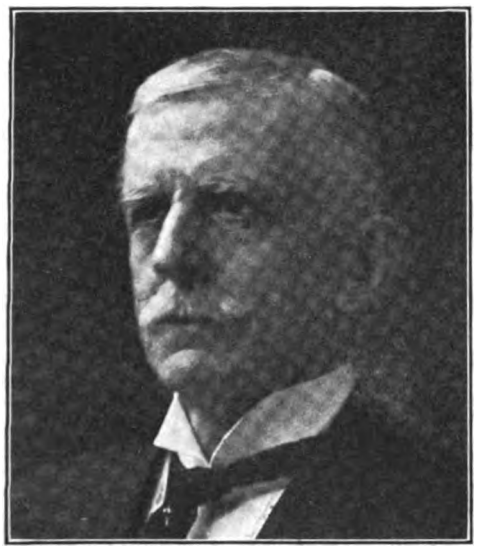
Freight Traffic Manager; and in July, 1911, when the Boston & Albany Railroad was made a separate property and operated under the direction of a vice-president located at Boston, Mr. Biscoe became Traffic Manager.

R. J. McCarty.

R. J. McCARTY, vice-president of the Kansas City Southern Railway, who has recently been put in charge of the accounts of that Road, was born in Clarksburg, Va., March 12, 1851. Graduated at University of Virginia in Mathematics in 1871. Axeman, rodman, transitman and assistant engineer International and Great Northern Railroad, 1871 to 1874. Graduated at University of Virginia in Engineering 1875. With Kansas Rolling Mill Company at Kansas City, Mo. 1875 to 1879. Assistant Engineer and Acting Chief Engineer "Cotton Belt", 1879. With K. C. Ft. S. & M. R. R. 1880 to 1886. Secretary and Auditor, Metropolitan Street Railway Company, Kansas City, Mo. 1887. General Manager and Chief Engineer, Metropolitan Street Railway Co., Kansas City, Mo. 1888 to 1895. Reorganized Street Railway and Electric properties at Augusta, Ga., 1896, Auditor, K. C. P. & G. R. R. Co. and its Receivers, Kansas City, Mo., 1897 to 1900. Secretary and Auditor, The Kansas City Southern Railway Co. 1900. Vice President, The Kansas City Southern Railway Co. 1907 to date.



R. J. McCARTY.

W. L. Martin.

W. L. MARTIN, who became general manager of the Denver and Rio Grande Railroad Company on September first was born in 1863 at Keokuk, Ia. He entered railway service in 1878, and since that time has been consecutively to February 2, 1880, clerk and telegraph operator, Missouri, Iowa & Nebraska Rd. at Keokuk, Ia.; February 2, 1880, to July 1, 1880, assistant agent at Alexandria, Mo.; July 1, 1880, to June 1, 1881, agent same road same place; June 1, 1881, to July 5, 1881, with Western Union Telegraph Co. at Kansas City Mo.; July 10, 1881, to September 20, 1881, operator freight office Wabash, St. Louis & Pacific Ry. at Keokuk, Ia.; September 20, 1881, to January 3, 1882, operator in dispatcher's office; January 3, 1882, to January 3, 1883, dispatcher, and January 31, 1883 to January 4, 1885, chief dispatcher same road at Centerville, Ia.; February 14, 1885, to April 15, 1887, chief dispatcher Louisville, Evansville & St. Louis; April 15, 1887, to July 1, 1889, master transportation same road; July 1, 1889, to November 15, 1889, trainmaster Nashville & Decatur division L. & N.; November 15, 1889, to October 1, 1891, assistant superintendent Nashville Division Louisville & Nashville Rd. and Nashville, Florence & Sheffield Rd.; October 1, 1891, to April 1, 1895, superintendent Owensboro & Nashville Rd.; April 1, 1895, to January 1, 1898, superintendent Louisville Division, Louisville & Nashville Rd.; January 1, 1898, to September 1, 1900, superintendent Henderson & St. Louis division same road at Evansville, Ind.; September 1, 1900, to April 1, 1902, general superintendent Denver & Rio Grande Rd.; June 1, 1902, to December 31, 1912, superintendent Southern Ry. at East St. Louis Ill., and Princeton, Ind.; January 1, 1903, to May 31, 1907, general manager Mexican International Rd.; June 1, 1907, to September 1, 1913, assistant general manager Denver & Rio Grande R. R. at Denver; appointed general manager September 1st.

W. L. MARTIN.

A. D. Lightner.

A. D. LIGHTNER, who recently was appointed chief officer of operation and traffic of the New Orleans, Texas and Mexican Railroad, was born February 2, 1866, at Keokuk, Iowa. He entered railway service with the Atchison, Topeka and Santa Fe at Wellington, Kansas in 1883, as operator and clerk and in 1885 became agent for this road, occupying positions at various stations in Southern Kansas. In 1890, he was appointed traveling freight agent of the Frisco-Santa Fe joint lines at Carthage, Mo., and in 1896, became general agent of the Frisco at Dalas, Texas. In 1899, he was transferred to the St. Louis offices of this road, and in 1904 became general agent

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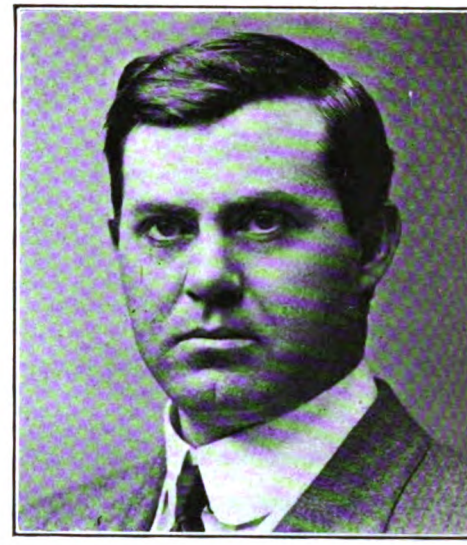
of the executive department and general manager of the Birmingham Belt at Birmingham, Ala. In 1906, he was made superintendent of the Southeastern and Ozark divisions of the Frisco lines with headquarters at Memphis, Tenn., and in 1907, he again became general agent of the executive department and general manager of the Birmingham Belt. In February, 1912, his duties were enlarged to that of general agent of the executive, traffic and transportation departments of all the Frisco lines and president of the New Orleans Terminal Company.

A. D. LIGHTNER.

George Bradshaw.

GEORGE BRADSHAW began railroad service in 1902 with the Chicago & North-Western in the investigation of personal injuries and damage to property. He remained in that capacity for seven years when he accepted employment in the same line of work with the New York Central and Hudson River Railroad. After two years he was assigned by the Vice President of that company to special service in the investigation of accidents with a view of determining causes and methods of prevention, being perhaps the first person designated by any railroad to devote his entire time and attention to the prevention of accidents. As a result a safety department was organized including all New York Central Lines and he was put in charge as General Safety Agent which position he retained till March, 1913, when he resigned to take up the Safety Work on an independent basis as a Safety Engineer being likely the first person to adopt this line of work as a profession. During his administration of the Safety Department of the New York Central Lines, there was a remarkable decrease of injuries in all branches of the service.

Mr. Bradshaw is well known as a lecturer and writer on railroad problems pertaining to safe operation. Since his connection with the New York Central, Mr. Bradshaw has inspected the property and rendered service in an advisory capacity for the Buffalo, Rochester & Pittsburgh, the Merchants severing Despatch Transportation Co., and other transportation and industrial corporations. He was recently engaged by the Grand



GEORGE BRADSHAW.

Trunk System to inaugdrate the Safetyy First Movement and organize a Safety Department for its lines.

S. S. Butler.

S. S. BUTLER, who was recently appointed traffic manager of the New Orleans, Texas and Mexico Railroad, with headquarters at Houston, Texas, was born in Murfreesboro, Tenn., in 1875. He entered railway service in 1899 in the general offices of the Texas and Pacific Railway at Dallas, Texas. He continued in general office work for nine years and in 1898 was made relief agent of the Texas and Pacific, being promoted the following year to traveling auditor. In 1900, he left the services of the Texas and Pacific to become soliciting freight agent for the Frisco Lines at Dallas. In 1903, he was promoted to traveling freight agent for the same

S. S. BUTLER.

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system, and in 1907, became commercial agent. In 1907 he was made general agent with headquarters at Portsmouth, Ark., and in 1908 was sent to New York as general Eastern agent. In 1912, he was appointed assistant to the vice-president in charge of traffic of the Texas, Louisiana lines, which position he held until his recent appointment. The other roads of the Frisco System of which he has also been made traffic manager are the Orange and Northwestern Railway; Beaumont, Sour Lake and Western and the St. Louis, Brownsville and Mexico Railway.

W. B. Thomson.

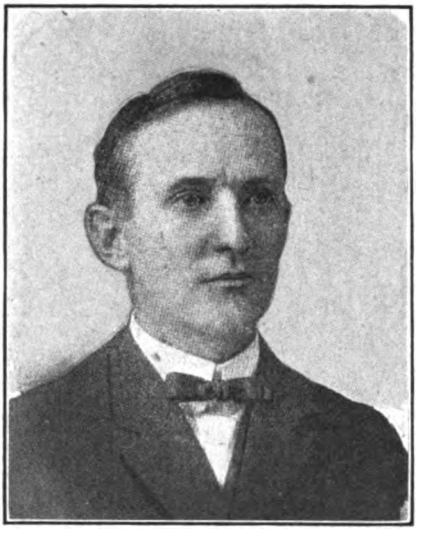
W. B. THOMSON, who has been made valuation engineer for the Wheeling and Lake Erie Railroad, began his services with the New York Central Lines with whom, from 1904 until 1909 he occupied various posi-

W. B. THOMSON.

tions including chainman, rodman, concrete inspector, transitman and designer in the office of the designing engineer at New York. From 1909 until 1912 he was assistant engineer in the office of the engineer of structures of the Boston and Albany Railroad. In this capacity he had the responsible charge of the field work and erection of more than fifty bridges sub and super-structure under traffic as well as general design location and investigations for grade crossing elimination. From 1912 until his recent appointment, he was with the Wheeling and Lake Erie as chief draughtsman in charge of general designs, estimates, etc. Mr. Thomson is an associate member of the American Society of Civil Engineers as well as a member of the Cleveland Engineering Society.

Frank S. Elliott.

FRANK S. ELLIOTT, who has been appointed general superintendent of the Central district of the Great Northern, with headquarters at Great Falls, Montana, was born September 29, 1865, at Eddyville, Iowa. He received a high school education and began railway



FRANK S. ELLIOTT.

work in July, 1882, as a telegraph operator for the Chicago, Rock Island & Pacific. From 1884 to 1889 he was employed by the Chicago, Burlington & Quincy as operator, agent and train despatcher, and the following year he was with the Atchison, Topeka & Santa Fe as train despatcher. He then went to the Northern Pacific as a train despatcher, leaving in 1904 to go to the Great Northern, where he remained until 1905, serving succesively as train despatcher, chief dispatcher, trainmaster and assistant superintendent of the Spokane and Cascade divisions. He was then for one year superintendent of the Denver & Rio Grande at Salt Lake City, Utah, returning to the Great Northern in 1906. For two years he was assistant superintendent of the Dakota, Kalispell, Spokane and Willmar divisions, and from 1908 to 1910 was superintendent of the Northern and Dakota divisions and the Lake district. Mr. Elliott was then made assistant general superintendent of the Western district, with office at Spokane, Wash., which position he held until his recent promotion.

C. L. French.

C. L. FRENCH, who has been appointed assistant general superintendent of the Pittsburgh system of the Baltimore & Ohio with headquarters at Pittsburgh, Pa., was born on December 27, 1866, at Cumberland, Md., and graduated from Allegheny County High School. He began railway work on October 1, 1883, as a messenger in the train despatcher's office on the Cumberland division of the Baltimore & Ohio, and has been in the continuous service of that road ever since. He was later appointed operator and then train despatcher. On June 1, 1899, he was made chief despatcher, which position he held until August 1, 1902, when he was appointed assistant trainmaster. He then became trainmaster at Cumberland, Md., remaining in that position until April, 1910, when he was made superintendent of the Connellsville division, which position he held at the time of his recent appointment as assistant general superintendent of the Pittsburgh system of the same road.

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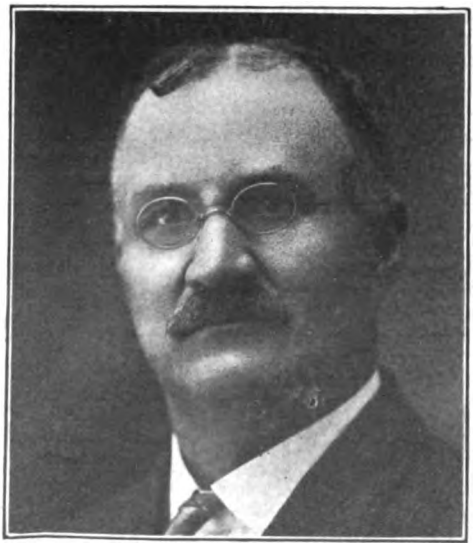
C. L. FRENCH.

G. M. Crownover.

G. M. CROWNOVER, who has been made superintendent of motive power of the Chicago Great Western Railroad, was born at McVeytown, Pa., September 26, 1863. He entered the service of the Illinois Central R. R. at Waterloo, Iowa, April 1, 1881, as machinist apprentice and after serving his apprenticeship and two years as journeyman machinist in April, 1887, was transferred to Clinton, Hl., as roundhouse foreman. April 1, 1892, he was transferred back to Waterloo to take the position of machine shop foreman. In October, 1896, he was promoted to general foreman in charge of the Waterloo shops. From December, 1900, to April, 1902, he was division foreman at Fort Dodge, Iowa. In 1902 the Illinois Central erected new shops at Waterloo and Mr. Crownover was placed in charge as general foreman. Eight months later he was appointed master mechanic of the same road at Freeport, Ill. From November 15, 1904, to December 20, 1909, he was shop superintendent in charge of Burnside shops, Chicago, Ill. On the latter date he resigned to accept the position of master mechanic of the Chicago Great Western R. R. at Oelwein, Iowa, from which he was promoted on September 1, 1913, to that of superintendent of motive power.



G. M. CROWNOVER.

J. E. Duval.

J. E. DUVAL, who was recently appointed superintendent of car service of the Grand Trunk Railway, entered the service of the Canada Atlantic Ry. as agent and operator at Coteau Landing, Que., in November, 1884. He was promoted to train dispatcher in May, 1885, and to car service agent in 1902. Mr. Duval resigned in 1904 to accept the position of chief inspector of the board of railway commissioners of Canada. He left the post in 1906 to organize the Canadian Car Service Bureau and he held the position of manager of the bureau until August 1, 1913, when he resigned to accept his present position.

J. E. DUVAL.

Hollis C. Pearce.

HOLLIS C. PEARCE, who has been appointed general purchasing agent of the Seaboard Air Line with headquarters at Norfolk, was born on June 1, 1867, at Westberry, Que., Canada, and graduated in 1884 from St. Charles-Baromme College at Sherbrook, Que. He began ralway work in 1885, as superintendent's clerk on the Minneapolis, Lyndale & Minnetonka, and was then conductor and later material clerk for the superintendent of construction of the same road. From September 1, 1887, to April, 1903, he was with the Minneapolis, St. Paul & Sault Ste. Marie, consecutively as clerk to the superintendent of construction for one year, clerk in the auditor's office two years, chief clerk to the general superintendent three years, general storekeeper seven years, and purchasing agent three years. He went to the Chicago, Rock Island & Pacific in April, 1903, as assistant purchasing agent, and from May, 1904, to 1906, was general storekeeper of that road. In 1906 he was ap-

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H. C. PEARCE.

pointed general storekeeper of the Southern Pacific Company, which position he held at the time of his recent appointment.

A. C. Mann.

ALBERT CLINTON MANN, who recently became purchasing agent of the Illinois Central, with headquarters at Chicago, was born September 1, 1881 at Effingham, Ill. He was graduated from the high school at Decatur, Ill., in June, 1898, and the following year took a stenographic course at Brown's Business College in the latter city. He began railway work January 10, 1900, as stenographer for a commercial agnt of the Illinois Central at St. Louis, Mo., and later was bill of lading clerk in the same office. In February, 1902 he was advanced to secretary to the general agent at St. Louis, and four months later was transferred to Chicago as secretary and clerk to the coal traffic manager.

A. C. MANN.

In June, 1904, Mr. Mann entered the purchasing department as secretary to the purchasing agent, and was subsequently price clerk and chief clerk in that department. He was promoted to assistant purchasing agent in January, 1912, and in May of that year was made purchasing agent of the Central of Georgia at Savannah, Ga., which position he held until September 1, when he returned to Chicago as purchasing agent of the Illinois Central, as above noted.

E. J. Parrish.

E. J. PARRISH, who has been appointed superintendent of the Fort Wayne division of the New York, Chicago & St. Louis R. R., was born in 1865 in Terre Haute, Ind. He began as a messenger boy for the Western Union Telegraph Co. and while so employed learned telegraphy. He accepted service with the New York, Chicago & St. Louis R. R. as operator, September 14, 1885, and was promoted in December, 1886, to train dispatcher at Conneaut, Ohio. Mr. Parrish

E. J. PARRISH.

was appointed superintendent of telegraph of the same road, with headquarters at Cleveland, Ohio, June 15, 1912. His promotion and transfer to Fort Wayne, Ind., was effective September 1.

Arthur T. Hadley.

ARTHUR T. HADLEY, president of Yale College, who has been made a director of the New Haven System, was born in New Haven, Conn., in 1865. He graduated from Yale College in 1876 and was later student at the University of Berlin. In 1885, he was appointed commissioner of statistics for Connecticut and from 1886 to 1899 he was professor of political science for Yale College. In the latter year he was elected its president. Dr. Hadley is the author of a number of publications dealing with social and economic problems. The one best known to railroad officials being his "Railroad Transportation, its History and Laws," which was published in 1885.

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Financial

Summary of Railway Revenues and Expenses for the Fiscal Year.

IN Bulletin No. 51, recently published, the Bureau of Railway Economics has summarized the revenues and expenses of steam railroads in the United States for the fiscal year ending June 30, by the employment of the following table. This table includes returns from railways operating an average mileage of 221,829 miles which was about 90 per cent. of the steam railway mileage of the country.

Briefly summarized, the table shows that total operating revenues during the fiscal year 1913 amounted to $3,057,089,811, or an average of $13,781 per mile of line; operating expenses amounted to $2,118,529,173, or $9,550 per mile of line; the residue, net operating revenue, amounted to $938,560,638, or $4,231 per mile of line. Compared with the fiscal year ending June 30, 1912,

SUMMARY FOR THE FISCAL YEAR 1913 OF REVENUES AND EXPENSES OF STEAM ROADS

Compiled from monthly returns of the railways to the Interstate Commerce Commission and covering the roads included in the monthly report of that Commission, which are those having annual operating revenues of $1,000,000 or over.

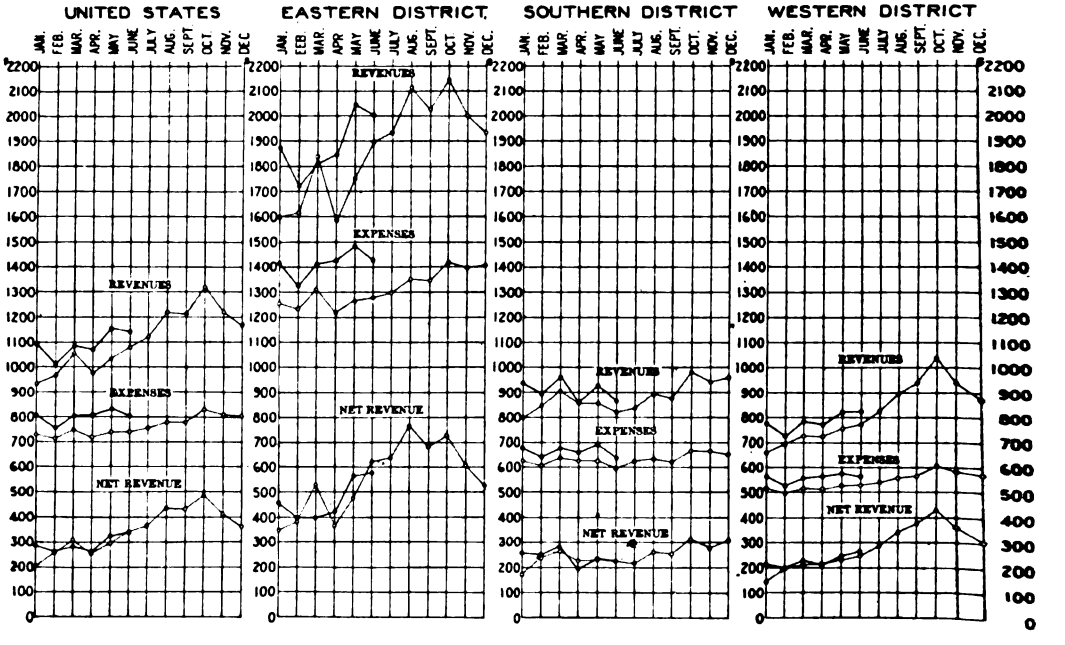
ACCOUNT	UNITED STATES				EASTERN DISTRICT				SOUTHERN DISTRICT				WESTERN DISTRICT			
	Amount 1913	Per mile of line	Increase per mile over 1912		Amount 1913	Per mile of line	Increase per mile over 1912		Amount 1913	Per mile of line	Increase per mile over 1912		Amount 1913	Per mile of line	Increase per mile over 1913	
			Amt.	Pct.			Amt.	Pct.			Amt.	Pct.			Amt.	Pct.
Total Operating Revenues	$3 057 089 811	$13 781	$1 051	8.3	$1 256 220 434	$23 404	$2 172	10.2	$483 959 970	$10 076	$639	6.1	$1 344 908 306	$10 199	$788	8.0
Freight	2 134 943 799	9 623	894	10.0	956 907 207	16 184	1 770	12.0	323 197 661	7 751	699	9.9	853 838 943	6 988	697	10.2
Passenger	676 440 099	3 049	109	3.7	209 348 723	4 986	220	4.6	96 949 996	2 899	88	3.9	369 144 761	3 008	78	2.6
Other transportation	220 615 073	990	90	9.5	89 317 611	1 686	180	9.1	39 193 660	699	34	5.1	88 303 802	723	88	4.8
Non-transportation	33 270 860	150	18	13.6	16 977 893	286	48	28.6	3 975 872	126	10	8.7	11 617 089	96	8	9.7
Total Operating Expenses	2 118 529 173	9 550	707	8.5	908 086 199	16 683	1 775	11.9	336 094 988	7 811	531	7.3	884 408 086	6 754	652	8.3
Maint. of way and struct.	407 154 008	1 836	219	13.6	176 462 891	3 041	505	16.9	63 543 978	1 532	156	11.6	167 150 140	1 269	113	9.8
Maint. of equipment	501 663 583	2 261	230	11.8	260 136 043	4 136	536	14.9	88 396 723	1 974	127	6.9	179 130 816	1 440	156	11.9
Traffic	61 366 709	277	4	1.6	23 676 167	408	14	3.5	10 816 134	299	14	5.1	26 893 888	220	4.8	4.7
Transportation	1 076 914 488	4 846	270	5.9	497 256 261	8 569	600	8.7	197 227 803	3 707	222	6.3	430 430 874	3 444	136	3.8
General	73 406 646	331	13	4.0	30 576 327	527	32	6.4	12 038 184	288	10	3.7	30 791 963	253	7	2.8
Net Operating Revenue	938 560 638	4 231	344	7.7	348 134 235	6 723	397	6.3	127 921 982	3 068	98	3.3	460 497 211	3 446	336	11.5
Outside Oper.- Net Revenue	1 979 131	, 8	—	—	def 317 769	def 5	—	—	113 077	3	—	—	1 184 434	13	—	—
Taxes	183 888 118	960	35	4.7	53 186 169	916	50	5.8	16 689 840	399	21	5.6	53 884 418	461	17	4.1
Operating Income	616 897 651	3 080	289	8.3	336 484 315	5 808	334	6.1	111 406 089	2 669	88	3.1	368 197 307	3 016	321	13.2
Average mileage represented [1913 / 1912]	221 888 / 217 233				56 068 / 57 776				41 790 / 41 258				128 062 / 130 199			

def Deficit. d Decrease.

MONTHLY REVENUES AND EXPENSES PER MILE OF LINE

ROADS HAVING ANNUAL OPERATING REVENUES OF $1,000,000 OR OVER

CALENDAR YEAR
1912 •
1913 •


UNITED STATES
EASTERN DISTRICT
SOUTHERN DISTRICT
WESTERN DISTRICT
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
REVENUES
EXPENSES
NET REVENUE
2200 2100 2000 1900 1800 1700 1600 1500 1400 1300 1200 1100 1000 900 800 700 600 500 400 300 200 100 0

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the fiscal year 1913 shows an increase in total operating revenues per mile amounting to $1,051, or 8.3 per cent.; an increase in operating expenses per mile of $747, or 8.5 per cent.; a resultant increase in net operating revenue per mile of $304, or 7.7 per cent. Taxes increased $25 per mile, or 4.7 per cent., and there was an increase in net revenue from outside operations. Operating income increased $283 per mile, or 8.3 per cent.

The total operating revenues of the Eastern group of railways increased $2,172 per mile, or 10.2 per cent.; operating expenses increased $1,775 per mile, or 11.9 per cent. while net operating revenue increased $397 per mile, or 6.3 per cent. Taxes per mile increased 5.8 per cent. and operating income increased $334 per mile, or 6.1 per cent.

For the Southern group of railways total operating revenues per mile increased $629, or 6.1 per cent.; operating expenses per mile increases $531, or 7.3 per cent.; net operating revenue per mile increased $98, or 3.3 per cent. Texas per mile increased 5.6 per cent., and operating income per mile increased $80, or 3.1 per cent.

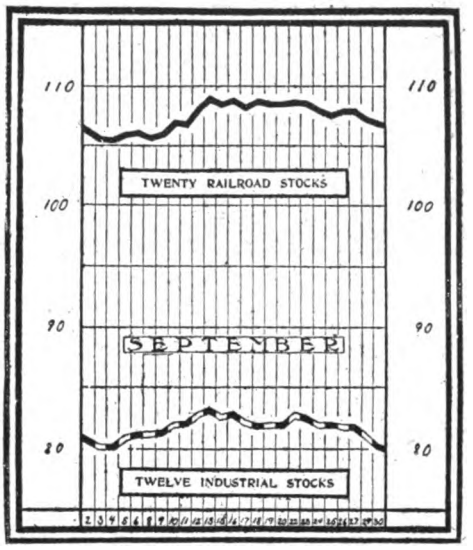
The Western group of railways show an increase in total operating revenues per mile of $758, or 8.0 per cent.; an increase in operating expenses per mile of $402, or 6.3 per cent.; an increase in net operating revenue per mile of $356, or 11.5 per cent. Texas per mile increased 4.1 per cent., and operating income per mile increased $351, or 13.2 per cent.

The Bulletin also contains a summary of the results for June, which reduced to a per mile of line basis and compared with the returned for June, 1912, show an increase in total operating revenues per mile of 5.9 per cent., and an increase in operating expenses per mile of 8.9 per cent. Net operating revenue per mile was less by $1.42 or 0.4 per cent., than that for June, 1912, while that for June, 1912, was 4.4 per cent., greater than for June, 1911.

The Outlook.

UNCERTAINTY is the one word which most accurately describes the present financial outlook; to this might be added caution as the keynote. Paramount in its influence is the new tariff law. The effect of such sweeping tariff changes cannot be easily measured and business is generally marking time, waiting such developments as will give it a more definite and understandable basis on which to go ahead. The crop deficiency is another cause for uneasiness, while the railway situation is at the present time, largely under the influence of the investigation by the Inter-state Commerce Commission concerning the necessity for permitting the Eastern carriers to advance their freight rates 5 per cent.

Railway managers report traffic conditions as fairly satisfactory, although many of their statements indicate that they are anticipating a still further slowing down in the near future. The effect of the new tariff law upon the steel industry is being anxiously watched as a probable barometer for other industrial lines. Currency legislation is another factor helping to charge the outlook with uncertainty, although enough opposition has developed against the present measure to indicate that President Wilson will not have the easy sailing he had in the passage of tariff legislation. Bankers large and small throughout



the country are strenuously opposng the currency bill and in fact the opposition has become so vigorous as to affect democratic members of Congress, with the result that no definite action is now looked for much before December first, if by then.

The Stock Market.

THE stock market continues weak and irregular with small daily transactions. September's movement as reflected by average prices compiled by Dow, Jones & Company showed little net change despite fairly wide fluctuations. On the fourth of September the market reached the low point in both industrials and rails. The accompanying chart shows the trend of twelve industrial and twenty railroad stocks during September:

The twelve industrial stocks used are: Amalgamated Copper, American Car & Foundry, American Smelters, American Sugar, Central Leather, General Electric, National Lead, Peoples Gas, United States Rubber common, United States Rubber 1st preferred, United States Steel and United States Steel preferred.

The twenty active railway common stocks used are: Atchison, Baltimore & Ohio, Canadian Pacific, Chicago North Western, Chicago, Wilwaukee & St. Paul, Delaware & Hudson, Erie, Illinois Central, Lehigh Valley, Louisville & Nashville, Missouri Pacific, New York Central, Rock Island, Southern Pacific, Southern Railway, Norfolk & Western, Northern Pacific, Pennsylvania, Reading, Union Pacific.

The Bond Market.

ACCORDING to the Wall Street Journal, the advances in bond prices which started in June and continued through July and August, met with a setback in September. Twenty-five representative railroad bonds closed at the end of the month more than one-third of a point on the average below the prices at the end of August. The following chart shows a decided decline from the sharp upward movement that was recorded for July and August.

However, the situation has again shown tendencies of improvement and it is well known, that

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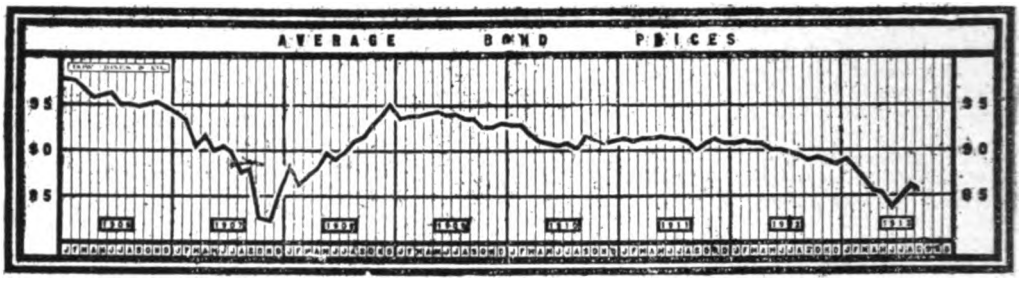

at their present prices, good railway and industrial bonds constitute unusual bargains for investment purposes. With the exception of two months in 1907, prices have not been so low for eight years. An indication of the recent improvement in the market has been the rapid sale of $10,000,000 Baltimore and Ohio equipment trusts on a 4 1-2 per cent basis, and also the quick sale of $7,130,000 similar Southern Pacific securities on a 5-1-4 per cent. basis. Equipment trusts which were selling not long ago on a 5-1-2 per cent. basis, have now moved up to where the return is nearer 5 per cent.

These signs of an improved market are unusually welcome to railroad officials, as steps must soon be taken for a large amount of new financing. Refunding of a vast amount of short termed issues must soon be accomplished and there are already indications that arrangements are being made and plans considered to consolidate much of this indebtedness and convert it into more distant maturity issues. It is hoped of course that this can be done at a lower interest rate than that which present issues bear and for this reason the market is being narrowly watched. Certainly the feeling seems to be growing that present rates are too high, that the current cost of capital is not waranted, and that this is perhaps as good a time as any to test the market with securities bearing a more conservative rate of interest.

The first road to take steps to provide itself with financial machinery wherewith to conduct its refunding operations was the St. Paul. Nothing is known of pending plans, but it has been pointed out that the mortgage under which the $30,000,000 of 4-1-2s were put out in April is practically closed. While it is not expected that any new bonds will be issued immediately, this can be looked for shortly after the mortgage is authorized.

The Southern Railway also is preparing to enter the bond market, if not with the intent of obtaining new capital, at least with the idea of consolidating its funded debt. Its plan is said to follow the lines laid down by the Chicago, Burlington & Quincy, the Great Northern, and to be similar to those contemplated by the New York Central and the St. Paul. The first two named have mortgages for $300,000,000 and $600,000,000, respectively. The Southern Railway wants one of $300,000,000, under the provisions of which outstanding indebtedness will be retired and new issues floated as desired. As in the case of the St. Paul, none of these issues is expected in the near future, the beginning of 1914 being mentioned as probably the most likely time for the first offering. Although the report of this contemplated mortgage is officially labeled premature the existing condition leaves no doubt of the wisdom of such action.

Earnings and Dividends.

RAILWAY earnings continue to show unfavorable results. Returns of 77 leading roads operating in the United States show for August, an increase in gross of 1.06 per cent., but a decrease in net of 12.95 per cent. as compared with the same month of last year. This compares with an increase in gross for July of 4.98 per cent. and a decrease in net of 6.45 per cent.

The operated mileage covered by these roads for August, 1913, equaled 177,142 miles, as compared with 175,309 miles for August, 1912, an increase of 1.833 miles. The total operated mileage in the United States is approximately 250,000 miles.

Gross earnings:

	1913	1912	Increase	Inc Per Cent.
77 rds.	$224,792,064	$222,426,604	$2,365,460	1.06

Net earnings (after deducting taxes and including the results of outside operations):

	1913	1912	Decrease	Dec Per Cent.
77 rds.	$62,830,605	$72,180,219	$9,349,614	12.95

These general and important decreases in railway net earnings may be largely attributed to increased wages in various departments, increased cost of material, increased cost of regulation and large expenditures out of gross earnings for maintenance of way and betterments in anticipation of crop yields which have not been fulfilled. In addition, gross earnings have been restricted by disappointing crops, by accumulative reductions in transportation rates made by numerous state and inter-state railroad commissions and by the hestitating attitude of business on acount of tariff and other legislation, so that it is little to be wondered at that net results have proven so unfavorable. It would not be surprising if this decrease should reach the labor question in a very definite manner before the close of the year. Furthermore these developments tend to strengthen the railroads contention that a general increase of rates is necessary if they are to maintain their plants in proper condition. In fact with some roads it has reached beyond this point and the more pressing question of solvency is receiving increased attention. The crux of the whole situation appears to rest in higher operating costs, the only relief from which appears to be an increase in transportation charges .

While there have been fortunately, but few railway receiverships during the year, there has developed a rather imposing list of railways which have been forced either to pass or reduce their dividends. The record shows five carriers

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which have been forced to take the former action and five which have been compromised by a reduction in rates. As to increases in dividend rates, practically none of importance has been registered by the railroads.

The following table gives a list of the companies that passed or reduced their dividend in the current year together with their outstanding capital stock and present and former dividend rate:

Dividends Passed.

	Capital.	Old rate.
Boston and Maine com.	$38,529,791	4%
Boston and Maine pfd.	3,149,800	6%
Cleveland, C. C. and St. L. pfd..	10,000,000	5%
National Rys. of Mexico, 1st pfd.	28,831,000	4%
St. L. and San Francisco 1st pfd	5,000,000	4%
Western Maryland pfd.	10,000,000	4%

Dividends Reduced.

	Capital	Old Rate	New Rate
Bangor and Aroostook	$3,198,600	4%	2%
Chesapeake and Ohio	62,792,500	5%	4%
Illinois Central	109,296,000	7%	5%
New Haven	157,863,300	8%	6%
St. L. Southwestern pfd. ..	19,893,650	5%	4%

Figures for the fiscal year ending June 30th, while not displaying quite the startling tendencies of the results for July and August, show a normal increase in gross, accompanied by such an abnormal increase in operating expenses and taxes as to result in a net income wholly inadequate to meet the pressing transportation demands of the American people. In other words, while the gross revenues for the fiscal year 1912-13 exceeded those for the fiscal year 1909-10 by over $384,000,000 the net income increased less than $4,000,000 of this imposing figure. How the industry can expand under such tendencies is a problem which requires the immediate attention of all those responsible for the maintenance of a progressive plant.

Steel Corporation September Statement.

THE September statement of the United States Steel Corporation shows that unfilled orders on the books of the various subsidiary companies on September 30 were 5,003,785 tons. This is a decrease of 219,683 tons as compared with the unfilled tonnage carried at the end of August.

The corporation is still receiving specifications on contracts at a rate which will keep present capacity active during the balance of the year. It is an interesting fact that export business has been quite heavy recently and has compensated for some loss in domestic business.

The unfilled orders on the books of the subsidiary companies are now approximately what they were on December 31, 1911, there having been a steady decline in the unfilled tonnage since December 31, 1912.

Annual Reports.

ANNUAL reports for the fiscal year, with few exceptions, show favorable results. Without a knowledge of true conditions, however, these statements are apt to prove misleading inasmuch as the increase in operating expenses which has been so characteristic of railway activities of the past few months, did not begin to have a marked effect until well into the present calendar year. For this reason the fiscal year figures do not indicate, as they might, the downward trend in net results which has recently characterized operations. On account of the number of reports received, it is impossible to do more than briefly refer to each in the following paragraphs:

The report of the New York, New Haven & Hartford Railroad Company for the year ended June 30, 1913, shows net earnings of $21,386,164, a decrease of $1,442,882 from the previous year. The surplus after charges was $8,922,237, a decrease of $4,463,312. In order to pay dividends amounting to $13,486,563 the company incurred a deficit of $4,564,325, an increase of $3,634,335. The operating expenses showed an increase of $5,600,027, and the ratio of operating expenses and taxes to the gross revenue was 74.24 per cent. as compared with 70.68 per cent. the preceding year.

President Elliott says that while the earnings for the first few months of the fiscal year were the greatest in the history of the company for a similar period the net results of the year compared with 1912 show a large decrease due to "heavier operating expenses, which reflect principally the expenditures made by the company to put the property and equipment in better condition to handle business safely and promptly and to pay increased wages."

In further explanation of these figures, President Elliott goes on to say:

"The unfortunate accidents at Westport, Conn., on October 3, 1912; at Stamford, Conn., on July 12, 1913, and at North Haven, Conn., on September 2, 1913; the continued investigations for several years of the company and its operations, and the resulting demoralization and expenditures made the year one of unusually heavy outlays.

"While the human factor was one cause for the deplorable accidents referred to, the management did not attempt to evade its full responsibility, and the efforts of the officers and employes were and are being systematically devoted to raising the railroad and service to higher standards of efficiency and discipline, all necessitating larger expenditures and higher wages."

The increase in the cost of operating, the report says, is a general condition affecting all the railroads of the country. All these conditions, it is explained, made it necessary to reduce annual dividends from 8 per cent. to 7-1-2 per cent. This reduction was made during the last quarter.

The annual report of the Boston & Maine for the year ended June 30, 1913, shows net earnings of $10,929,378, a decrease of $470,589. This includes the earnings of the eight separately operated lines controlled by the Boston & Maine.

The report shows that additions and betterments totaled $7,939,660 in 1913, of which $3,815,715 has been charged to leased roads. In 1912 additions and betterments were but $3,350,980; in 1911, $10,998,084; and in 1910, $4,698,499. Expenditures during the past year included for shops, enginehouses and turntables, $1,698,255; additional main tracks, $1,966,365; terminal yards, $613,006, and elimination of grade crossings, $674,053.

During the year $2,094,720 equipment was bought consisting almost wholly of 100 new locomotives.

The report of the New York, Ontario & Western Railway Co. for the year ended June 30, 1913, shows net earnings of $2,955,308, an in-

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crease of $935,906. The surplus after charges was $1,211,633, equal to 2.08 per cent. on the capital stock, as compared with 0.81 per cent. earned the previous year. Operating expenses during the past year showed a decrease of $9,501.

The annual report of the Erie Railroad shows an income account as follows:

	1913.	1912.	1908.
Gross	$62,647,359	$56,492,370	$49,784,236
Net	16,146,760	13,984,117	8,752,540
Other inc.	6,133,812	4,059,039	2,916,498
Net inc.	22,634,411	18,043,156	11,669,038
Fixed chgs.	14,528,736	14,016,341	13,292,460
Surp for divds.	7,340,156	3,377,203	*1,623,422

*Deficit.

In 1908 Erie failed to earn its fixed charges by $1,623,422; last year the company earned a surplus of $7,340,156 over its fixed charges, which was equal to 4 per cent. in both the first and second preferred stock at 4-1-4 per cent. on the $112,378,900 common. Since 1908 gross earnings have increased from $49,784,000 to $62,647,000, and the operating ratio has decreased from 82.4 per cent. to 73.5 per cent.

Record earnings for the Reading system are shown in its report for the year ended June 30, last, in a net corporate income of all three companies of $15,099,874, as compared with $8,082,214 the year before. This is equivalent to 17.57 per cent. earned on the common stock of the Reading company, against 7.54 per cent. the previous year.

Gross receipts of the railway company for the year were $52,214,894, an increase of $6,389,179. Operating expenses increased only $2,030,462. Net receipts from operation of the railway were $21,667,553, an increase of $4,358,716. The increase in the coal freight revenue was $2,936,730 and that in revenue from merchandise freight was $2,555,508. The railway carried a surplus for the year to its profit and loss account of $2,794,105, against a deficit of $890,006 the year before.

Gross earnings of the coal company for the year were $40,893,063, an increase of $5,249,410 over the year before. Expenses of operation were heavy, increasing $2,583,606, leaving the large increase in net revenues of $2,665,803. The balance carried to profit and loss account was $1,139,592. There were mined during the year 11,089,742 tons of coal, against 8,671,013 tons the year before.

Gross earnings of the Reading Co. were $15,392,261, an increase of $1,539,803. Fixed charges and taxes of the three companies decreased $11,472 during the year. The funded indebtedness of the Reading Co. was decreased by $904,000 in the year.

President Baer says that the increase in wages to the engineers and firemen resulting from the arbitration award will cost the Reading $160,000 more annually.

Jersey Central earned 26.73 per cent. in the year ended June 30, 1913. This compared with 21.9 per cent. in 1912 and 26.05 per cent in 1911. Dividends paid were 12 per cent. a year.

The surplus for the year 1913 amounting to $7,332,882 was thus distributed: $3,292,416 in dividends, $2,832,285 expended in additions and betterments and $1,208,182 placed in a fund for future additions and betterments.

The feature of Jersey Central's year was the expenditure of $7,858,239 in additions and betterments. This was provided without financing. From previous funds $3,738,747 was taken, $1,287,207 was charged to capital account and the 1913 income account provided $2,832,285.

The report of the Chesapeake & Ohio Railway Company for the year ended June 30, 1913, shows net earnings of $10,633,718, against $11,654,189 the previous year. The surplus after charges was $3,298,503, equal to 5.25 per cent. on the stock outstanding, as compared with 6.8 per cent. earned the preceding year. Unprecedented floods in the James River and Ohio valeys in March seriously affected gross and net earnings, and another adverse factor was the prolonged strike by coal miners in certain sections of West Virginia, which materially reduced the output of the mines affected. Notwithstanding these handicaps, gross revenues increased $795,409 over the year before, but operating expenses increased $1,815,879 and taxes were $361,643 above those of the year previous.

In the year ended June 30, last, Southern Railway earned a balance available for dividends on the common stock equal to 3.39 per cent. against 3.13 per cent in the previous year.

Gross earnings made a new high record at $68,529,000, an increase of $4,939,000, but operating expenses were $4,577,000 higher, giving net after taxes a gain of only $350,000. With the preferred stock on a full 5 per cent. per annum basis last year, the preferred dividends were $300,000 above 1912, leaving $4,078,625 available for common stock dividends.

To profit and loss account for the year was added $4,029,694, making this account as of June 30, after deuctions of $412,343, $17,374.558.

The report of the Norfolk & Western Railroad Co. for the year ended June 30, 1913, shows net earnings of $15,174,107, an increase of $1,108,300 over the previous year. The balance available for dividends was $11,106,641, which after allowing 4 per cent. on the adjustment preferred stock, was equal to 10.17 per cent. on the common; as compared with 9.87 per cent. earned in 1912. The operating expenses showed an increase of $2,896,383. The ratio of expenses to operating revenue was 65.31 per cent. against 64.6 per cent. the previous year.

The report of the Kansas City Southern Railway Company for the year ended June 30, 1913, showed gross earnings of $10,706,309, an increase of $1,433,450 over the previous year. The year's total net income amounted to $3,661,795, a gain of $982.972. After deducting $2,015,590 for fixed charges, such as interest, rentals, etc., there was a balance of $1,646,205, an increase of $760,255. From this there was paid $840,000 in preferred dividends, leaving a surplus of $806,205, which is equal to 2.68 per cent. on the $30,000,000 common stock outstanding, compared with 9.15 per cent. earned in the previous year.

The income account of the Illinois Central Railroad Company for the year ending June 30, 1913, shows there was an increase in net income of $3,108,665, notwithstanding the handicap caused by the flood conditions in the southern states which entirely stopped the movement of traffic between the northern and southern lines for a period of nine days, causing not only the loss of considerable revenue but a large expenditure in restoring the portions of the railroad washed out.

The report of the Chicago, Indianapolis & Louisville Railroad Company for the year ended

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June 30, 1913, shows net earnings of $1,882,007, against $1,728,441 the previous year. The surplus after charges was $538,361, which, after allowing 4 per cent. on the preferred stock, leaves a balance equal to 3.22 per cent. on the common, as compared with 1.99 per cent. earned last year.

Like other roads in the same general territory, Minneapolis, St. Paul & Sault Ste. Marie shared substantially in the increased commercial and agricultural prosperity of the Northwest last fiscal year. And the extent to which Soo did so is reflected in the company's gross earnings, which show an expansion of nearly $4,500,000, or over 25 per cent. In the achievement of this record figure, Soo handled over 1,500,000 tons of freight more than in the preceding year, a performance which was accomplished by measurably better car service and train loading.

The surplus for the year after providing for the payment of fixed charges and the preferred and common dividends amounted to $2,880,701, an increase of 82.6 per cent. over 1912.

The report of the Denver & Rio Grande Railroad Company for the year ended June 30, 1913, shows net earnings of $7,405,793, against $6,295,885 in 1912. The balance available for dividends was $2,076,372, equal to 4.16 per cent. on the preferred stock, as compared with 2.26 per cent. earned the previous year. The number of passengers carried for the year was 1,843,634, as compared with 1,770,179 in 1912; and the rate per passenger per mile increasd from 1.93 cents last year to 2.03 cents in 1913.

The annual income statement of the St. Louis Southwestern Railway Company, the Cotton Belt Route, for the year ended June 30, 1913, showed gross earnings of $13,296,949, an increase of $1,254,406 over the previous year. The railway operating income amounted to $3,599,816, a gain of $449,744. To this was added $1,044,324 in other income, making gross income for the year $4,644,141, an increase of $596,225. Deductions from gross income amounted to $2,757,949, leaving a balance to transfer to the credit of profit and loss amounting to $1,886,191, compared with $1,617,619 at the close of the 1912 fiscal year. This was equal to 5 per cent. on the $19,893,750 preferred stock and an additional 5.45 per cent. on the $19,356,100 common stock, against 5 per cent. on the preferred and 3.8 per cent. on the common stock the previous year.

Minneapolis & St. Louis in the year ended June 30 last earned 7.6 per cent. upon its $5,917,500 preferred stock, returning a surplus available for dividends of $451,894, compared with a deficit after charges of $667,041 for the previous year. Big crops were of course the main factor in causing the reversal, but the merger of the M. & St. L. with the Iowa Central probably did something toward bringing about a more compact and efficient transportation machine.

In the current fiscal year officials of the road expect to equal the earnings of last year and should this eventuate, the company would be upon a basis that might justify expectations for preferred stockholders. The comparatively poor showing of 1912, the year in which the merger with the Iowa Central was effected, put somewhat of a strain upon the road's credit, but the return to better things should go a long way toward strengthening its all around position.

Chicago, Rock Island & Pacific Railway, in its annual report for the year ended June 30, last, shows balance of income, after all charges, of $4,058,355, equal to 5.41 per cent. on $75,000,000 capital stock. Of this amount there was paid out in dividends $3,743,525, leaving a surplus for the year of 314,830, against surpluses of $106,636 in 1912, $1,511,766 in 1911, and $1,004,609 in 1910.

Gross earnings for the last year totaled $71,364,935, an increase of $6,652,081 over the $64,712,853 gross in 1912; gross revenue for 1911 was $68,487,473, and for 1910, $66,220,579. Net revenue for 1913 was $18,860,833, against $17,953,359 in 1912. $19,431,790 in 1911, and $18,151,210 in 1910.

Property investment during the year was increased $9,537,861, representing expenditures for additions and betterments, and acquisition of additional equipment.

The forty-ninth annual report of the Chicago, Milwaukee & St. Paul Railway Company for the year ended June 30, 1913, shows gross earnings of $94,084,054, an increase of $14,828.699 over 1912. Last year is the first that the St. Paul report has included the revenues of the lines formerly owned by the Chicago. Milwaukee & Puget Sound Railway. which was made a part of the St. Paul system last December. Operating expenses last year, including those of the Puget Sound Extension amounted to $62,883,967 or $3,628,783 more t han for the previous year, making net earnings from rail operations equal to $27,551,002. as compared with $18,078.208 in 1912, a gain of $9,472.714.

The year's operating net was swelled to a gross corporate income of $31,923,541 by the addition of $3,972,539 from investments. From this there was deducted $13,382,796 in fixed charges, consisting chiefly of $11,438,141 in interest on the funded debt, which left a surplus of $18,140,744, compared with the combined surplus of the St. Paul and the Puget Sound in 1912 of $9,778,908, an increase of $8,361,836. In 1912 the Puget Sound Extension exhibited a deficit of $151,538, while the St. Paul proper showed a surplus of $9,930,446. Last year's surplus after the payment of the regular dividends of 7 per cent. on the $116,274,900 preferred stock, which required $8,115,233, left a balance for the $116,348,200 common stock outstanding of $10,025,511, equal to 8.6 per cent. This is 3.6 per cent. above the amount now paid by the St. Paul system.

The pamphlet report of the Chicago & Northwestern Railroad shows a prosperous year for that ended June 30 last. The report shows that after deducting the preferred stock dividend and the sinking funds from the net income there was left for the common stock the sum of $12,883,422, or 9.73 per cent., as compared with 7.31 the year previous. Gross earnings were $83,035,921, an increase of $9,337,329 over the previous year. The railway operating income amounted to $21,197,277, a gain of $3,656,405. Other income last year aggregated $3,463,492, making the gross income equal to $24,660,769 an increase of $3,738,003. Total deductions from the gross income were $9,785,755, leaving a surplus before sinking fund and dividends of $14,875,013, an increase of $3,150,473. After the payment of 8 per cent. on the company's preferred stock and 7 per cent. on the common, there remained a balance of $3,775,407 to transfer to the credit of profit and loss, compared with $567,715 in 1911-12.

Operations of the Chicago Great Western last fiscal year netted the road a surplus of $1,245,039,

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an amount equivalent to 3.03 per cent. on its preferred stock, of which there is $41,021,402 outstanding. This compares with 0.44 per cent. for the preceding year. That the road was enabled to make this showing was due to a 10 per cent. increase freight revenue, and to close handling of operating expenses.

Operations last fiscal year placed the company in a much more substantial position with regard to the prospective payment of dividends at the rate of 4 per cent. per annum on the preferred stock. These dividends become cumulative July 1, 1914, and it is President Felton's estimate that a gross per mile of $10,000, or total gross of $15,000,000 must be earned annually to make secure the payment of these dividends.

Northern Pacific's report for the year ended June 30, 1913, shows a surplus available for dividends of $21,563,518, equal to 8.69 per cent. on the $248,000,000 stock outstanding. Last year 7.93 per cent. was earned on the same amount of stock.

Gross earnings increased $9,252,192, of which $8,477,164 was due to larger freight revenue. The tons of revenue freight carried during the year totalled 21,285,527, an increase of 3,829,552 tons over the year previous.

Two-thirds of Northern Pacific's gain in gross revenues went into additional operating expenses. For maintenance of way and maintenance of equipment $3,651,519 more was spent than in the year before.

Net operating income of $24,312,633 was $2,473,532 larger than in 1912. There was little change in other income and charges. The surplus after all charges, including dividends, totalled $4,203,518, an increase of $1,899,703. Out of this surplus $750,000 was appropriated for sundry claims.

The Great Northern Railway Company, in its report for the fiscal year ended June 30 last showed gross operating revenues of $78,692,767, an increase of $12,494,948 over the previous year. The operating income was $28,076,258, a gain of $3,513,366, operating expenses and taxes consuming $50,138,031 of gross. From sources other than transportation the company derived an income of $3,208,158, making the gross corporate income for the year equal to $31,884,417, from which was deducted $7,316,103 in interest and other fixed charges, leaving a balance applicable to the company's capital of $24,568,313. This is equivalent to 11.7 per cent. on the $209,990,750 stock outstanding, compared with 10.31 per cent. earned in the 1911-12 fiscal year and 8.34 per cent. earned in 1910-11.

Annual Report of Missouri Pacific.

IN his annual report to the stockholders of the Missouri Pacific-Iron Mountain a year ago President B. F. Bush gave credit to the people the railroad system served for the increase in business shown. In his annual report for the fiscal year ending June 30th last President Bush puts squarely up to the people the success of the railroad. He winds up his comments on results of the year as follows:

"The anticipations of a year ago with respect to the operations of the property have been quite fully realized. The transition from a deficit last year of approximately two millions of dollars to a 'Net Income' credit of $1,562,734, is but a corollary to the persistent and economic application of energy directed toward the further development of that recognized unit—the welfare of the public and the integrity of the carrier. As the curtailment, so also the continuation of this development, largely rests with the people served by the Missouri Pacific System.

"Ordinarily, the expression 'density of traffic', meaning in this instance the average number of revenue tons transported one mile per mile of operated railroad—conveys little, but to state that this measure of quantity increased 17.8 per cent. over that obtaining last year, and 28 2-3 per cent. compared with two years ago, can not fail to impress both users of the road and the public in general, not only with the tremendous increased wear and tear which must be currently restored, but also and more particularly with the absolute necessity of making the way clearer for securing funds, properly protected as an investment, so that the patent facility and service requirements of the growing communities may be competently met. Action—and action there must be—looking to the accomplishment of that end, constitutes good citizenship, and carries a nation-wide influence in the common cause of our country, and is an obligation from which no geographic section can exempt itself.

"Wholly apart from and in addition to enormous payments for purchases, the System dispensed this last year in wages alone a sum in excess of $29,000,000.00. It is obvious that the beneficiaries of such disbursement should be ardent progressors and defenders in the solution of all these complex factors which go to make for our mutual and inseparable success."

The figures for the year are most flattering. The total gross receipts are nearly $8,000,000.00 above 1912, which was the biggest year in the history of the company. The total operating revenue for the year closing with June 30th, last was $62,155,506.14, compared with $54,503,249.92 for the year ending June 30th, 1912, an increase of $7,652,256.22, or 14.04 per cent. The total revenue from transportation was $61,671,459.88, against $54,068,092.10 in 1912, an increase for the year just closed of $7,603,367.78, or 14.06 per cent.

Both freight and passenger business show healthy increases. The total revenue from freight for the year just closed was $45,748,269.39, while for the year ending June 30th, 1912, the revenue was $39,514,355.87, a gain for the past twelve months of $6,233,913.52, or 15.78 per cent. The year ending June 30th, 1913, shows a gross revenue from passenger business of $11,627,480.60, whereas the income from this source for the preceding year was $10,662,443.17, an increase of $965,067.43, or 9.05 per cent. for 1913.

The total operating expenses for the year ending June 30th last were $44,698,997.05, while for the preceding year they were $41,280,592.01, an increase for the past year of $3,418,405.04, or 8.28 per cent.

The report also clearly indicates that the good showing was not due to savings in upkeep or equipment, but that on the other hand more money was expended in this direction than during the year preceding. The expenditures for maintenance of way and structures for the year just closed were $9,263,360.32, while for the year ending June 30th, 1912, they were $8,664,769.03, which indicates an increase in this respect of $598,591.29, or 6.91 per cent. For the past year the expenditures on maintenance of equipment

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were $9,860,187.54, compared with $8,321,786.50 for the preceding year, an increase for the year ending June 30th last of $1,538,401.04, or 18.49 per cent. Thus the increase in expenditures for maintenance of way and structures and for equipment for the year just closed compared with its predecessor amounts to considerably more than $2,000,000.00.

The net railway operating revenue for the year ending June 30th last was $17,363,504.47, and for the preceding year it was $13,101,805.15, an increase of $4,261,699.32, or 32.53 per cent.

The operating revenue per mile of road shows an increase for the year of $1,027.22 or 13.63 per cent., while the operating revenue per revenue train mile shows an increase of 7.91 per cent.

That economy in operation has been preserved is shown in a decrease of general expenses of 2.75 per cent., and a net deficit from auxiliary operations of 23.04 per cent. less than the preceding year.

The railway paid in taxes during the year the large sum of $2,314,348.73, whereas the taxes for the preceding year were $2,218,018.40, making the increase for the past year $96,330.33, or 4.34 per cent.

For fuel for its locomotives alone the company paid $4,379,000.59 during the year. The preceding year the bill for this item amounted to $4,186,981.32, making an increase for the twelve months just closed of $192,078.27.

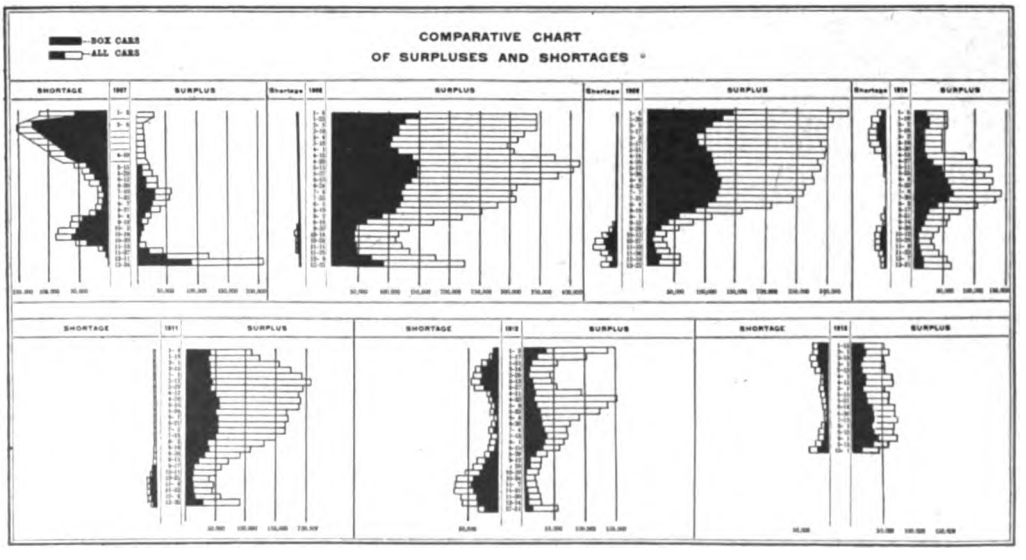
Operation

The Car Situation.

THE latest report of the American Railway Association shows the total surplus of railway cars on October first, to have been 41,994 compared with 61,753 on September 15th, and 26,754 on September 26, 1912. Compared with the preceding period, there is a decrease in the total surplus of 19,759 cars, of which 16,311 is in box, 761 in coal, 3,116 in miscellaneous, and an increase of 429 in flat car surplus. The decrease in box car surplus is in Groups 1 (New England Lines), 6 (Iowa, Illinois, Wisconsin and Minnesota), 8 (Kansas, Colorado, Oklahoma, Missouri and Arkansas), 10 (Washington, Oregon, Idaho, California, Nevada and Arizona), and 11 (Canadian Lines). The decrease in coal car surplus is in all Groups, except 4 (the Virginias and Carolinas), (Texas, Louisiana and New Mexico), and 10 (as above). The decrease in miscellaneous car surplus is in all Groups, except 3 (Ohio, Indiana, Michigan and Western Pennsylvania), 4 (as above), 7 (Montana, Wyoming, Nebraska and the Dakotas), and 9 (as above). The increase in flat car surplus is in Groups 4, 8, 9, 10 and 11 (as above).

The same report shows that the total shortage on October first of the present year amounted to 31,620 cars while on September 15th, it was 21,594 cars and on September 26, 1912, 44,547 cars. Comparisons with the previous year indicate more favorable operating conditions for 1913. Compared with the preceding period there is an increase in the total shortage of 10,026 cars, of which 6,206 is in box, 534 in flat, 2,662 in coal and 624 in miscellaneous car shortage. The increase in box car shortage is in all Groups, except 3 (as above), 5 (Kentucky, Tennessee, Mississippi, Alabama, Georgia and Florida), and 8 (as above). The increase in flat car shortage is in Groups 2 (New York, New Jersey, Delaware, Maryland and Eastern Pennsylvania, 3, 6, 8, 10 and 11 (as above). The increase in coal car shortage is in all Groups, except 5 and 6 (as above). The increase in miscellaneous car shortage is in all Groups, except 7 (as above).

Compared with the coresponding period of 1912 there is an increase in the total surplus of 15,240



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cars, of which 7,736 is in box, 1,800 in flat, 1,759 in coal and 3,945 in miscellaneous car surplus. There is a decrease in the total shortage of 12,927 cars, of which 10,016 is in box, 1,612 in flat, 1,318 in coal and an increase of 19 in miscellaneous car shortage.

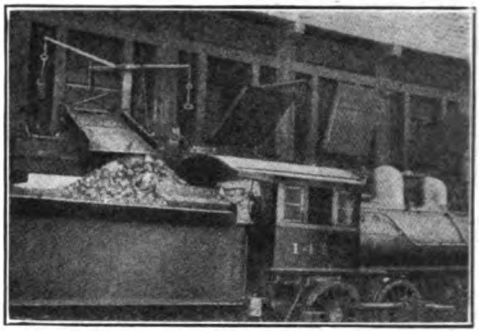
Prevention of Railway Accidents.

MUCH is being written regarding the prevention of railway accidents, not only in the transportation but in the general industrial field as well. A recent publication of real practical value is that by George Bradshaw, published under the above head by The Norman W. Henly Publishing Company of New York.

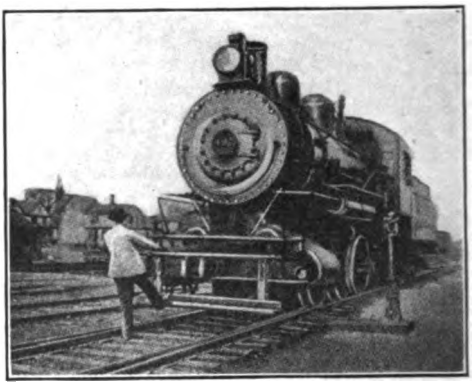
The author of this work was employed by the New York Central Lines in special service for the prevention of accidents and for many years had been constantly engaged in their study. From the mass of facts thus procured, he has formed certain conclusions as to the prevention of accidents and these he presents in the publication referred to in the form of a heart to heart talk with railroad employed. He deals with facts and not with theories and shows the men in the ranks from every day experience how accidents occur and how they may be avoided.

The book is illustrated with seventy original photographs and drawings showing the safe and unsafe methods of work. The volume is replete with plain facts and practical suggestions and every railroad employe who reads it should unquestionably be a safer man to have in railroad service.

Mr. Bradshaw reaches a conclusion which has been arrived at by many other officials who have been studying the safety problem, namely, that the majority of preventable accidents are due not to defective material or improper method, but to the men themselves. He points out that while considerations of safety still call for much improvement in physical conditions, it is a fact that



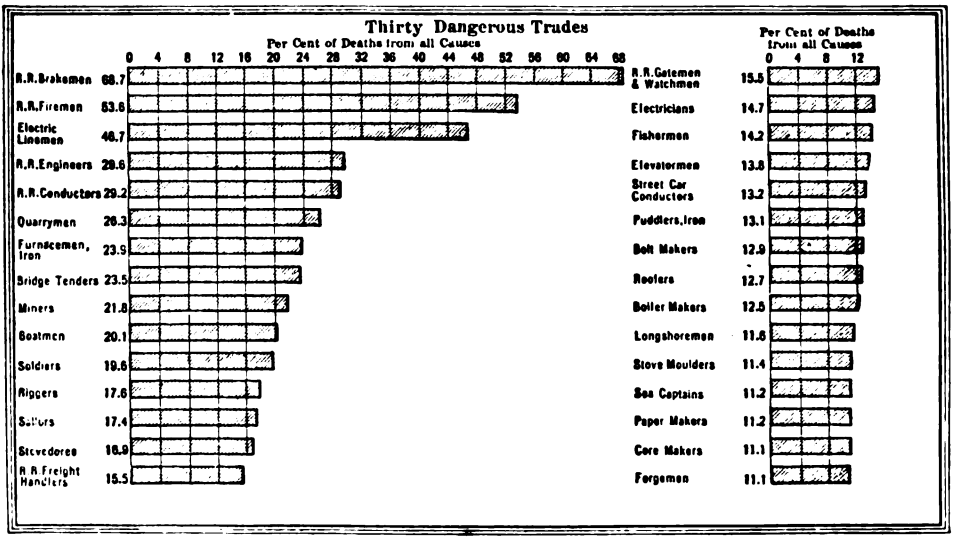
ON THE WRONG SIDE OF THE COAL APRON. Backward movement by engine would be likely to injure or kill man.



A DANGEROUS AND UNNECESSARY WAY TO JUMP UPON FOOT BOARD OF ENGINE. Should be done from outside of rail.

Mortality from Accidents.

Industrial Experience of the Prudential Insurance Company of America, 1897-1906.



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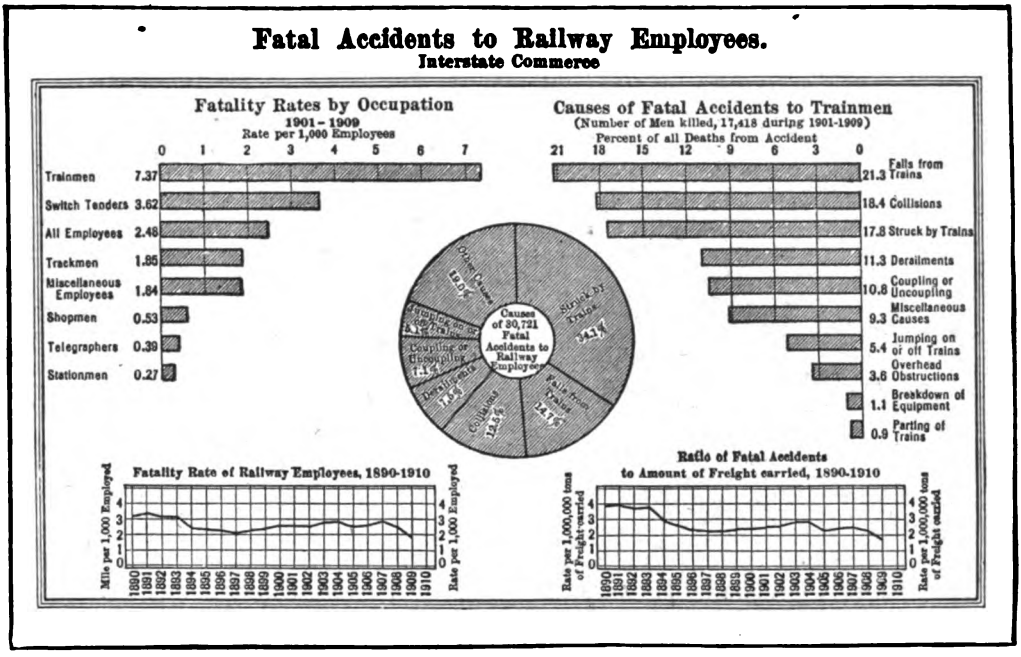
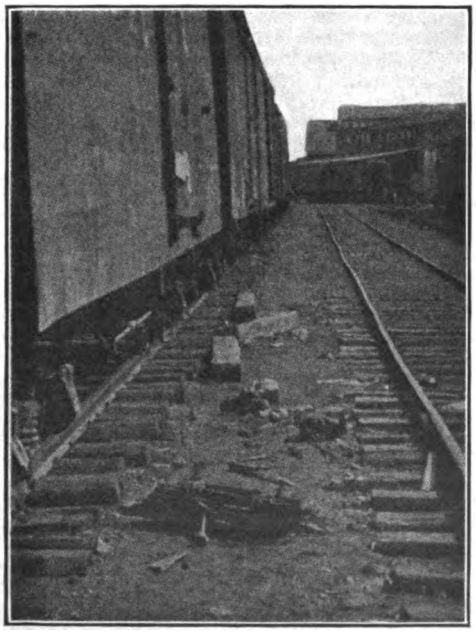


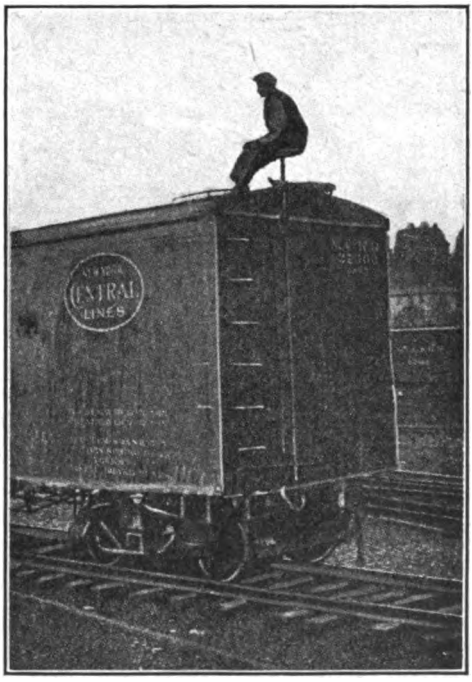
in no field of activity has there been greater material advancement than in railroading. In spite of this, however, the record of injury to employes has been growing worse every year. In discussing the human element, Mr. Bradshaw points out the seriousness of the personal injury problem, how the employes are the real sufferers from present conditions, how they are personally responsible for the injury record and how they can improve it.

Two charts of peculiar interest which appear in this volume, are herewith produced, one showing the fatal accidents to railway employes for a number of years and another showing the mortality from accidents to those engaged in various occupations both within and without the railway service.

Another notable recent contribution to this gen-



A Condition Full of Dangerous Possibilities in a Local Freight Yard, Which Could be Easily Corrected.



Sitting on the Brake Wheel of a Moving Car is Dangerous Practice, as a Sudden Jar is Likely to Throw the Employe to the Ground.

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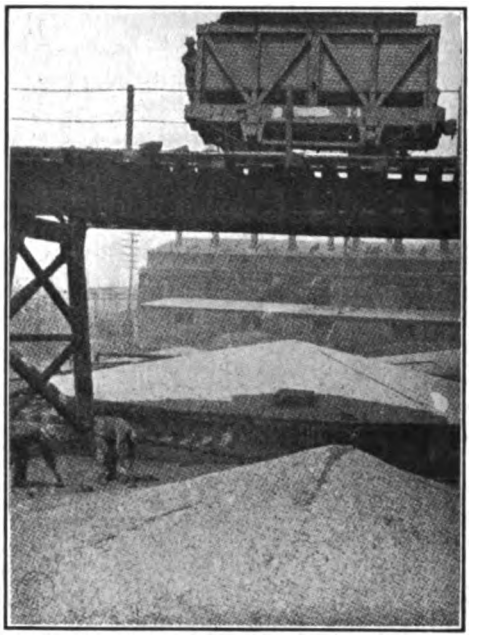
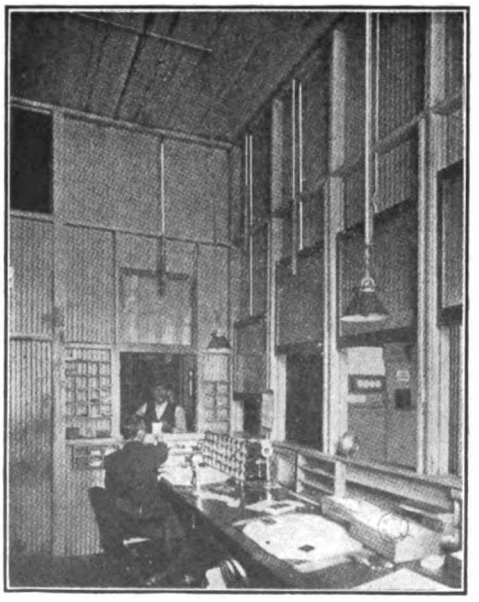
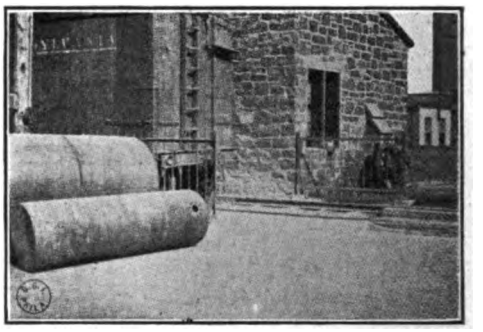
eral subject, is a work prepared by James B. Douglas, manager of the claim department of the United Gas Improvement Company. This volume is replete with practical illustrations, showing the hazards to be encountered in the yards and in the buildings peculiar to the industry which his company represents. Many of the illustrations, however, are of such a general character as to be applicable to the railway field, as indicated by those herewith reproduced. Mr. Douglas has gone into this question in a very thorough manner, and his illustrations, which number nearly 100, cover a wide scope and are of the highest educational value in connection with the general subject of greater safety. While prepared for the use of the employes of the various interests associated with the United Gas Improvement Company, the book would be a valuable addition to the library of every railway official who is making a study of the greater safety movement.



AN ORDINARY COAL TRESTLE SHOWING SEVERAL LARGE PIECES OF COAL DROPPED FROM CARS TO EDGE OF TRESTLE.



SASH WEIGHTS, COUNTERBALANCING SLIDING WINDOWS HUNG DIRECTLY OVER THE WINDOWS AND TABLE. SHOULD ROPE BREAK A SERIOUS ACCIDENT MIGHT OCCUR.



FENCES PLACED ON EITHER SIDE OF TRACK OF INDUSTRIAL PLANT TO COMPEL EMPLOYES IN CROSSING TO WALK OUT FURTHER FROM THE BUILDINGS.

The Trespassing Evil.

MANY prominent roads continue with unabated efforts their campaign against the trespassing evil. While at the present time the headway made has not proved very encouraging, railway managers are known for their tenacity to stick to a task until it has been successfully accomplished, and sooner or later they are going to impress upon public officials the necessity for more stringent laws and for their more general application in handling this unnecessary evil.

One of the latest contributions to this effort is in the form of an article by Marcus A. Dow, general safety agent of the New York Central Lines, published in a recent issue of the Outlook, under the head of "A Nation's Neglect". Mr. Dow's article is illustrated by a number of photographs showing the manner in which both minors and adults are constantly trespassing on the right of way of railroads several of which are herewith reproduced. In fact Mr. Dow's road is conducting a vigorous campaign against trespassing and is trying to invoke the aid of the law in New York State to stamp out this reckless practice. This campaign, it might be noted in passing, is in the interest of humanity and to prevent the unnecessary killing and laming of thousands of valued citizens as well as women and children rather than from any direct or indirect benefit to be derived by the railroad. Warning notices have been posted along the entire system and a special representative has been assigned to the work of interviewing every justice of the peace, police court magistrate and city court judge in towns along the line, to seek their cooperation and bring about a more rigid enforcement of the law. The road is also seeking the co-operation of manufacturers by personal communication, asking them to warn their employes

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A Short Way to the Ball Grounds. These Little Children Should Have Been Told by Their Parents of the Danger of Crossing Railway Tracks.

against walking the tracks and is following this up by making arrests where the warning has been disregarded. While this special campaign has been in operation only about two months, a marked improvement is already noted in localities where the work has been carried on, arrests made and punishment administered. One of the handicaps in procuring successful results from such efforts, is that the majority of states have no adequate laws prohibiting railway trespassing, and the public is little informed as to the great number of lives sacrificed in this manner and the social status of the majority of people thus killed and injured.

Mr. Dow points out in his article that more than 5,000 people are killed annually and as many more seriously injured from this unnecesary practice. In other words, fourteen human lives are snuffed out and as many more maimed for each day of the year. Besides women and children, those killed represent thousands of able bodied men whose value to the community, to their families and to themselves as producing elements and wage earners, has been either entirely lost or forever impaired.

As a result of an exhaustive study of the whole situation, Mr. Dow is of the opinion that two things are absolutely essential to curb the fast

The Coupling of an Engine at the Other End of These Cars Would Surely Mean Death or Serious Injury to One or More of These Boys.

Factory Workers by the Hundred Walk Upon the Tracks Homeward Bound, Often Thinking of Everything Else But the Fact That Their Lives are in Danger.

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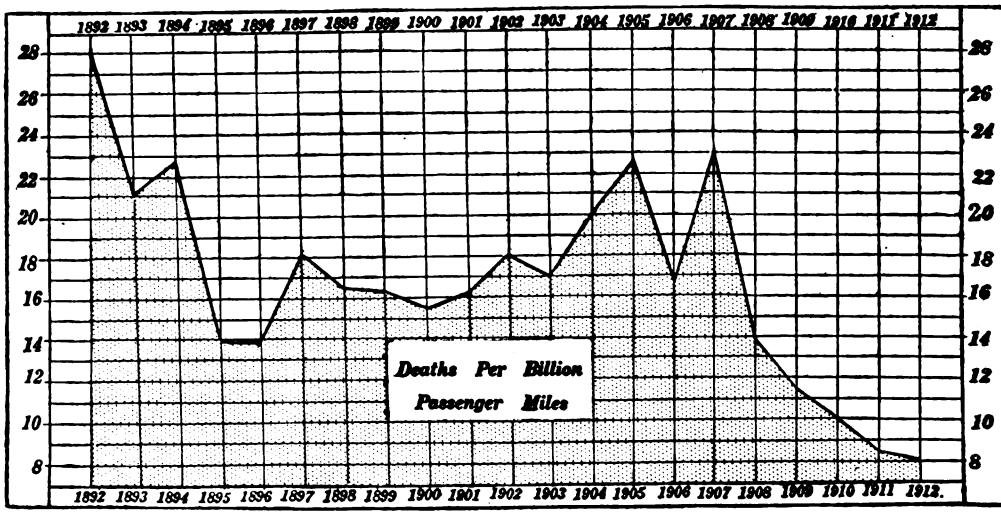
growing trespassing evil, namely, education and legislation. To quote from his article:

"Education properly conducted is an important step in the right direction, but this fearful loss of life and limb can never be successfully checked until we have the intervention of a proper law and law-enforcing powers. It is true that in some States there are statutes making trespassing on railways a misdemeanor and punishable by fine or jail sentence. But there is no uniformity throughout the States, and experience has shown that in the States where such laws exist it is difficult to obtain convictions even when an arrest of a trespasser is made. Magistrates are prone to discharge the offender and cast a censuring eye upon the railway officer who made the arrest. There seems to be a mistaken idea in the public mind that if a railway company attempts to prosecute such offenders, it is assuming a domineering and contemptible attitude, or exercising unduly the power of wealth over an obscure individual. But why should this be so? What is there to cause a railway corporation or official to assume such an attitude? What reason has a railway for wasting its time and money arresting, prosecuting, and campaigning against such offenders? A man does not damage the railway ties by walking on them. There is no legal redress for the trespasser who is injured unless willfully. Is it not possible for the public to give the railways the benefit of enough generous thought to say that, after all, it is probably a commendable and humane desire on the part of the railway officials to stop as far as possible a needless and fearful slaughter? But the railways are greatly handicapped. They cannot take any concerted and effective preventive measure because they have no law, and, worse yet, no public or judicial interest to any great extent, back of the giving them the right or authority to exclude, under penalty of the law, these trespassers from their property. It is the very absence of these laws and judicial and public interest that leads the average citizen to believe that railway rights-of-way are public highways, upon which they have a right to be and the children, following the example of their parents, brothers, uncles, and cousins, gather about the tracks, playing about turntables, in freight yards, hopping on and off cars, and indulging in other dangerous pastimes, with the result that in nearly every city or town there are children crippled or maimed from this cause, and thousands of cemeteries contain the bodies of little ones sacrificed. And all because this great Nation, the most progressive and humane of all people, has not awakened to the seriousness of the problem—because we are the only civilized Nation in the world that has no National law prohibiting, under the penalty of a penitentiary sentence, trespasing on railway tracks, and because in those few States where there are such laws there is a woeful neglect to enforce them. The total number of railway employees and passengers killed on our railways each year is less than the total number of trespassers killed and if it is worth while for the railways to spend millions of dollars to install and improve safety devices to prevent the killing of their own employees and passengers, why, I would ask, is it not worth while that some effective legislative action be taken by our Government to protect and save the lives of more than five thousand trespassers annually and the limbs of many thousands more? It would not cost the Nation a penny, and the saving to it of a vast economic loss, not only in the lives of its citizens, but in the reduction in the number of its helpless cripples, would be inestimable."

Decrease in Railway Accidents.

RAILWAY accidents have within recent months, been given so much publicity that a general belief has been developed that such casualities are on the increase. As a matter of fact, the reverse is true, and the following chart prepared by the Annalist, New York, graphically illustrates the reduction which has occurred in the past five years. In considering railway accidents in this country, it is customary to figure their percentage on the basis of the number of passengers carried. This makes American roads appear much more dangerous than those of Europe. As the Magazine of Wall Street points out, however, such a statistical method does not take into account the fact that in

The Falling Rate of Mortality in American Railway Travel



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America each passenger rides many more miles than in Europe, where distances are short. If we figure on the basis of "Passenger Miles", or in other words, the number of passengers multiplied by the miles each one travels, we find that travel in America is fully as safe as in Europe.

Automatic Block Signals for the Southern.

THE Southern Railway Company is now installing an automatic electric block signal system on the main line between Seminary, Va., and Orange, Va., a distance of 80 miles, all double track. This system will be similar to the type which has given splendid results on the double track stretches between Denim, N. C., and Charlotte, N. C., and between Monroe, Va., through Lynchburg to Montview, Va., and when completed will provide continuous automatic signal protection for trains from Orange into the Washington Terminal Station, giving in all a total of 198 miles of double track protected by this system on important stretches of the Washington-Atlanta main line.

Safety Developments on the Southern Pacific.

THE principles of modern advertising are being adopted by the Southern Pacific company in its "Safety First" campaign of education among its men. Not only is every effort being made to see that operating rules are enforced, but additional force is being given to the movement by constantly keeping before the minds of employes by other means the folly of carelessness in railroading. Letters of instructions, bulletins, paychecks, and similar papers, go out bearing a striking escutcheon with the words "Safety First" prominently appearing on it. Buttons with a like design are worn by the men on the lapels of their coats. A further step contemplates posting advertising signs on bulletin boards wherever employes congregate. They will be short and snappy, worded with a view to keep everyone thinking along lines of safety.

On all divisions, photographs and lantern slides are being prepared to reproduce in a realistic manner actual conditions that result in accidents. They will be explained by trained lecturers who accompany the examination car.

The Southern Pacific Company has been fortunate in not having killed a passenger on any of its passenger trains for the last five years. It now wants to educate the men to take more care of themselves. President William Sproule is devoting much of his personal attention to this campaign. As he says, "Human life and limb are the dearest things we have, and this most certainly applies to employes as well as to the patrons in our charge. Familiarity with hazardous conditions is apt to make workers minimize their danger. We hope by education to make them watchful of themselves. The lantern slides will show the folly of attempting to save a little time by jumping on the running board of an approaching locomotive, of getting between cars in coupling them, of leaving tools where they may fall upon a fellow worker, or even of such minor details as that of throwing a board on the ground with a nail sticking upward in it. "Safety First" is to be a real thing both for passengers and employes on the Southern Pacific. With block systems, steel cars and heavy rails, we are supplying the mechanical needs. By education, we hope to counteract the personal equation in so far as it may endanger safety."

Western Maryland Inaugurates a Pontoon Bridge Service.

BY putting in service the first pontoon bridge ever used in the Baltimore harbor in connection with the transfer of loaded cars from the piers to bargos, the Western Maryland Railway Company has paved the way for the general use of such bridges at the terminals in the Monumental City.

So far, the new structure has given entire satisfaction, and is proving daily that the transfer of equipment from the land to barges, can be done in much less time than is possible by the use of the old-style bridges which have been a fixture in the local harbor for years. This kind of bridge has been utilized by the trunk lines in New York for the movement of loaded railroad cars in Gotham's harbor, but up to this time, they have never been introduced in Baltimore.

The great advantage of this character of bridge is that its operation is extremely simple, and the maintenance cost small, which means greater economy to the railroad using it. The structure can also be adjusted to a barge or deck in much less time than can be done with the use of the old bridges. This is a strong factor in expediting the handling of traffic on barges. The structure is lowered to meet conditions by turning water into the pontoons, and is raised, when necesary, by the water being pumped out by an electric pump. The process of either lowering or raising the bridge is perfectly simple, and the adjustment takes place in the course of a few minutes, thus saving much time and labor.

New Locomotive Regulations on Baltimore & Ohio.

ENGINEMEN and firemen of the Baltimore and Ohio lines have been asked to use every effort to prevent locomotives attached to trains standing in passenger stations and at other places around terminals from "popping off". Frequently it happens that passengers hurrying past a locomotive to board their train are startled by a sudden "popping off" of a locomotive, and there is a possibility that persons might be frightened to such extent as to cause serious harm. A mother, for example, carrying an infant in her arms and looking after the safety of young children traveling with her, might be scared by a "popping" engine and drop the child; or a person carrying a valuable parcel might be surprised to the degree of dropping the package and breaking its contents.

Aside from the protection which this new rule affords to passengers, the railroad company hopes to effect an economy in the use of fuel and energy because it is a well known fact that the needless waste which results from engines blowing off steam tends to run up the charges of conducting transportation. It is possible to obtain the greatest efficiency from a locomotive without wasting a pound of steam.

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Mechanical

A New Method for the Construction of Seamless Tubes.

MARSHALL B. LLOYD.

REPRESENTATIVES of seamless tube manufacturers recently inspected in Detroit, a new invention for the production of seamless tubes, which does away with the 100 or more distinctive operations in their production and combines all in one continuous operation without waste. The invention, if it proves successful, threatens to revolutionize the industry, in which there is now invested some $200,000,000 in manufacturing plants.

The machine employed in the new method is so compact it occupies but three feet by twenty feet of factory space. A double machine, producing two tubes at once can be operated by two men. The hot or cold rolled steel is fed into it at one end and the tubing comes out at the other end. Every step is automatic and radically different from anything now used—forming, welding, straightening, sizing, polishing, drawing and even cutting being performed by the machine without deterring the forward progress of the steel. The machine turns out the finished polished tube at a rate of 4,000 feet a day in any size, weight, form, or length desired.

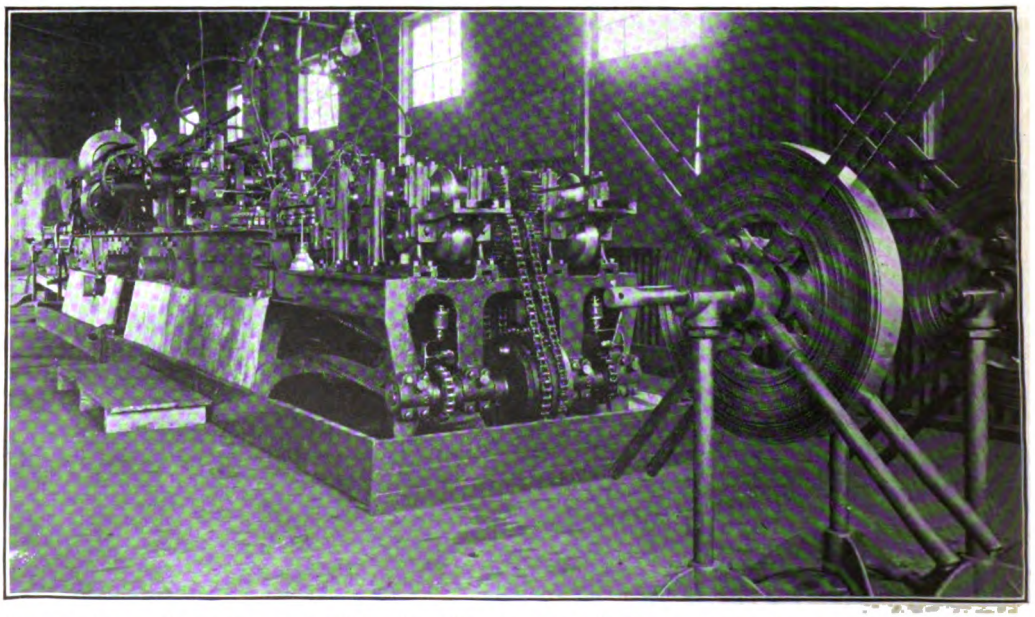
Advantages claimed for the tube produced are:

No waste.—The only waste in the entire operation is 1-16 of an inch in the cutting of the tube into the desired length. Present production methods incur waste of as high as 30 per cent in some processes.

The thinner the tube, the cheaper.—This reverses the present best basis, which is based on the greater amount of labor required to draw the tubes to finer sizes. As the size of the automatically machined tube is determined by a simple adjustment of the machine, the material used alone regulates the cost.

Uniformity of thickness, molecular tension, and resistance are assured, a variation of only .001 to .0005 inch in thickness was recorded by the micrometer in testing the tubes made by the machine while under inspection of experts.

Irregular shapes.—By ready adjustment, any desired shape of tube is made; standard forms, as oval, round, square, hexagon, etc., and irregular shapes, such as grooved round tubes for automobile wind shields, etc. No additional expense is incurred in the production of the irregular shape; no more time is required for its production.



ROLLED STEEL BEING FED INTO RECEIVING END OF NEW SEAMLESS TUBE MANUFACTURING MACHINE.

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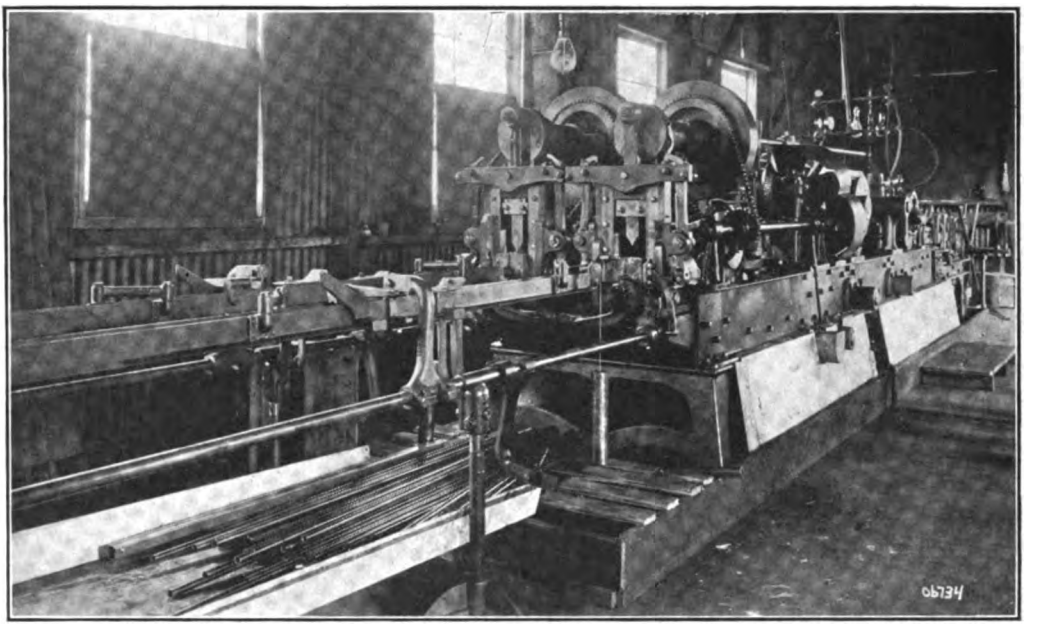

THE MACHINE TURNS OUT THESE FINISHED POLISHED TUBES AT A RATE OF 4,000 FEET A DAY IN ANY SIZE, WEIGHT, FORM OR LENGTH.

Saving in labor.—No special training in tube production is required to double machine.

Any size.—Tubing from one to seven inches diameter can be turned out by the standard machine by making adjustments. Larger tubing can be produced by building a special machine.

No weak point.—The method of threading the automatic tubing converts the weakest point of present tubing into the strongest point of that produced by the new invention. Instead of cutting threads into the ends of this tubing, the threading is built onto the ends of the new tubing, thus increasing its capacity to withstand pressure.

In this connection, while a 10 gauge, 3½ pound pipe is tested at a water pressure of 600 pounds, the 20 gauge is tested at 3,000 pounds water pressure. Mr. Lloyd asserts that his lighter tubing will stand greater pressure than the heavier grades now used.

The machine as demonstrated saves about 90 per cent in labor in the production, and reduces the total cost of production by about 50 per cent.

As the machine is so compact, it can readily be set up in the shop of any manufacturer using seamless tubes in his products.

The company organized to market the invention announces that it will not sell its machines but will license manufacturers to their use on a royalty basis. Marshall B. Lloyd, president of the Lloyd Manufacturing Company, Menominee, Mich., is the inventor of the new process.

Outlined in brief, the process used in the automatic production is:

The flat metal strip is drawn through a series of small rollers to form it into the tube shape with a mandrel of peculiar construction on the inside. The tube emerges from theese rollers to all appearances a seamless tube, the edges being even and tight. It then passes a device that holds the tube into position to be welded, the edges of the metal being melted by the use of gases. A small thin burr shows where the metal flowed together. This is removed with a knife and the tube is smoothed with a small emery wheel. It now passes into a large powerful vise with half round jaws, continually traveling and gripping about two feet of the tube stock. This vise is as powerful as the ordinary draw bench and is virtually an automatic bench in itself. When it emerges from the vise, it is sized and polished by cold rolling with water. It then passes through a straightening device, without interfering with forward movement, is cut off and dropped into a receptacle on the floor. In appearance the tube appears to be nickel plated, so smooth and bright is the polish.

One of the prominent tube manufacturers who had seen this process in operation said: "All the improvements in the history of tube making are only a trifle compared to the vast importance of what Lloyd has done. All I hope is that no one concern will ever obtain control of it. If the inventor carries out the plan on which he proposes to operate, namely, to license everybody who wants it, present prices of tubing will be cut in half. It will do for the tube industry what the cotton gin did for cotton and the reaper for agriculture. The saving in waste alone will mean a saving of millions a year to the tube industry."

Automatic Air Dump Cars.

THE Railway World has presentd from time to time, descriptions of automatic dump cars. A recent development along these lines, is a car manufactured by the Kilbourne & Jacobs Manufacturing Company of Columbus, Ohio, which is unlocked, dumped, righted and relocked automatically by the application of air drawn from the air brake train line.

The car is dumped by a piston on one side, and

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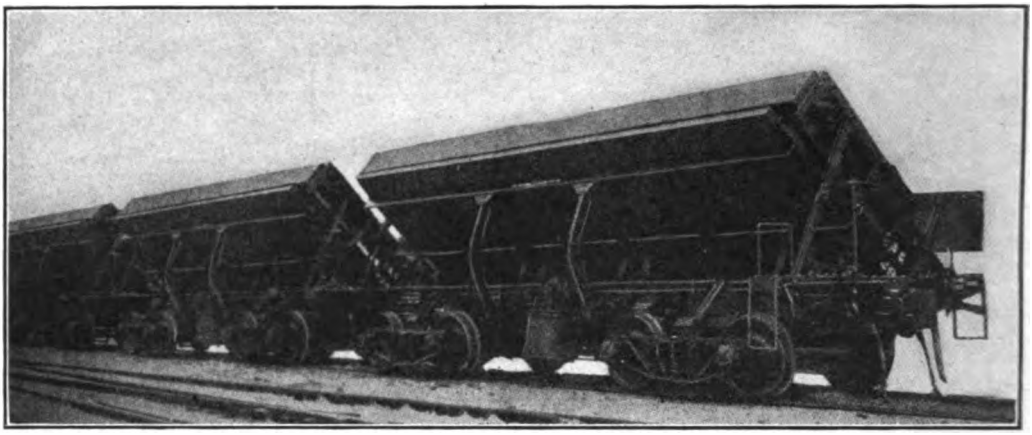
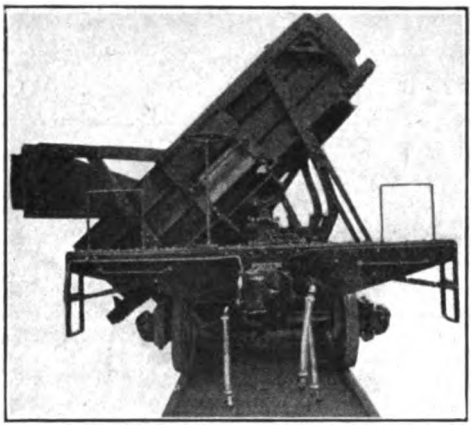


UNDER-SIDE OF DUMP CARS, SHOWING AIR CYLINDERS AND OPERATING MECHANISM.



END VIEW OF STEEL AIR DUMP CAR, SHOWING HINGED DOORS.

is righted by another on the opposite side, the operating devices for each side being separate and independent. The storage reservoirs are placed between the draft sills and are charged directly from the air brake train line.

The car is designed to dump upon the high side of a curve as well as upon the low side. Trains can be dumped simultaneously to the right or left; alternate cars can be dumped on opposite sides, or any portion of the train can be dumped independently. They dump at an agle of 44 deg., throwing the material clear of the track and thus largely eliminating danger of derailment. The unlocking and relocking of cars is automatic and being locked in transit they cannot dump accidentally.

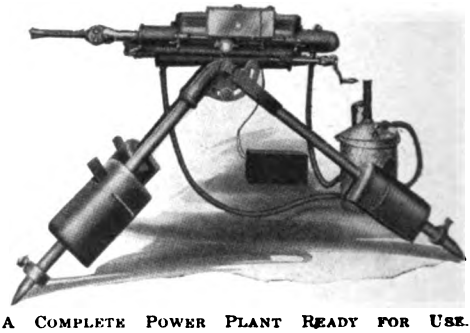
The car is constructed of steel throughout with the exception of the floor which is of hardwood. The doors are of steel box girder type and are suspended at the top from the lifting levers so that they are free to swing out when struck by the dumping load. The car conforms to the specifications of the Master Car Builders' Asociation and the Interstate Commerce Commission and is designed for use in freight trains at all ordinary speeds.

This type of car is built in three sizes.

The accompanying illustrations give a general idea of the car's appearance.

A New Gasoline Rock Drill.

THE field of air and steam rock drilling has been invaded by a drill using gasoline as the agency of motive force, upon principles new to all prior efforts in the gasoline drill development. It is an entirely self contained drilling unit, consisting only of the drill and tripod, and requires no other equipment. which particularly recommends it for use in contracting, mining, prospecting, tunneling, trenching, railroad construction, subways, etc. Mr. John V. Rice, Jr., of Philadelphia, is the inventor, and it is the outcome of his many years association with the rock drill industry.



A COMPLETE POWER PLANT READY FOR USE.

The drll has a full floating, free piston action. The piston rod, pistons and bit are all connected together, forming a direct striking piece, acting and striking the rock in the same manner as the air and steam drills of to-day. Little difference in appearance can be noted between this drill and the standard air or steam drills, excepting the noticeable absence of the usual auxiliary equipment of steam boilers, air compressors and piping necessary to them.

The motive force of this gasoline drill is furnished by two cylinders opposed to each other. A piston rod, fitted with a piston for each cylinder and on the end of which is the bit chuck, continuing through the two cylinders. A make and break spark plug for each cylinder are tripped and fired by each piston alternately. The firing of the rear cylinder drives the piston and bit

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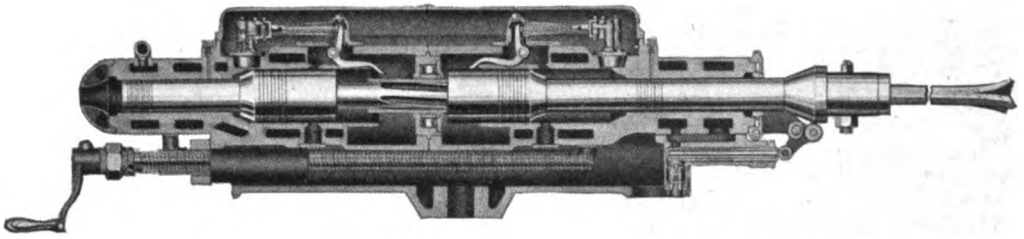

MECHANISM OF THE DRILL. THE PISTONS, PISTON ROD AND BIT FORM ONE FREE ACTING, FULL FLOATING PIECE, WITH NO INTERRUPTION OF THE DIRECT BLOW.

forward, hitting the rock directly with all of the force of an explosion of gasoline. The front cylinder then fires and the piston is sent back to its first position again with the full force of an explosion, lifting the bit with extraordinary power. This operation continues indefinitely.

The pulsator is of the two cycle design (no valves used) and fired at each stroke of the piston. The cylinders are water cooled under the control of a self contained pump operating simultaneously with the drill. The fuel and oil container is attached to the side of the drill and is adjustable with respect to the angle at which the drill is set. When running, the lubrication of the working parts is automatic. The oil is fed into the gasoline and the cylinders, pistons and bearings receive the amount necessary.

The drill strikes 600 blows a minute with a bit 24 ft. long and drills hole from 1-1-8" to 2-3-4" in diameter at any angle. The cuttng speed is under the control of the operator but when running at full speed the drilling is as rapid as the air or steam drills of equal cylinder size and weight. It operates for 10 hours on less than 3 gallons of gasoline when drilling continuously at the highest speed. The cost of daily operation is estimated at $3.50 for drill runner. $2.50 drill helper. 75 cents for gasoline and 10 cents for lubrication, a total of $6.85.

It is stated that the drills have been thoroughly tested under many difficult conditions and in all kinds of work. One test involved 6 months' continuous run in competition with air and steam drills which were on the same work, won satisfactory results. At times during this run which was in the winter, the temperature was as low as 5 degrees above zero, but the gasoline drill did not lose a day. The drill is manufactured by the Rice Gasoline Rock Drill Co. with their principal office in Philadelphia.

Freight Car Troubles.

ON September 12, J. C. Fritts, master car builder of the Delaware, Lackawanna and Western Railroad, read a valuable paper before the Central Railway Club on the question of "Freight Car Troubles". Mr. Fritts called attention to the fact that up to fifteen or sixteen years ago it was the general practice to build cars with short draft timbers extending from the end still back to and butting against the body bolster. He points out that cars having draft arms and attachments of this type are entirely unfitted to sustain the strains they are subjected to in the present long trains. He suggests as a remedy the substitution for the present short draft arm, one of metal construction that will extend back of the bolster. Cars which will not warrant the expenditure necessary for such re-enforcement should either be confined to local service, where the owners would be the only ones to suffer the consequences of perpetuating such equipment, or they should be scrapped. A number of illustrations were offered showing the danger done to cars of faulty construction, several of which are herewith reproduced. He points out that careful investigation indicates that the stresses due to buffing and pulling have more than doubled in the past ten years so that cars built to meet conditions of ten or twelve years ago are not able to stand present day service.

Mr. Fritts discusses in the following manner the two methods used in re-enforcing old equipment:

First, for the older types of cars that we do not feel justified in going to the expense of providing with steel underframes, some roads are using a metal draft arm instead of the old oak timbers. These metal arms are being made of steel castings or standard rolled steel shapes riveted together in such a manner as to prevent the sills from spreading. I have tried both kinds and favor the steel casting for the reason that it withstands greater buffing stresses and can be moulded into one piece for each arm, making fewer parts for repair men to handle. The only extra parts needed are two or three tie plates riveted from arm to arm so as to make them both act together in receiving the shocks. Furthermore, the metal can be moulded in any shape, which allows of a distribution to give maximum strength. These arms, starting at the striking plate should pass back through and over the transom for a distance of at least 24 in. and have square butting ends to receive a good stiff compression timber secured to under side of center sill.

One of the latest designs of this type of steel casting draft arm is shown in Fig. 8. The compression timbers should be placed in line between the needle beams and from each needle beam to the butting face of the metal draft arm. They should also be fitted so tightly that a jack is required to get them in place, and they should be of a good stiff section at least 5 in. x 6 in. This type of re-enforcing, including a modern fricion gear, can be applied to a car for approximately $135.00 and I feel sure it is all that is necessary for a very large number of the old cars that are now giving trouble.

The other method is to apply steel underframes complete at a cost of perhaps three times that of steel arms. This is pretty expensive but there are a large number of cars that will warrant this expenditure. Some of these underframes have been giving considerable trouble; therefore, we should look carefully into these troubles and de-

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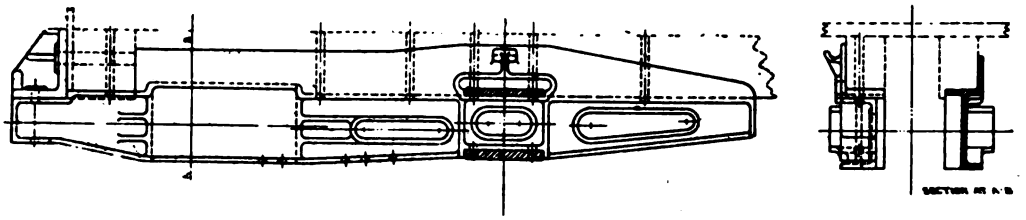


FIG. 8

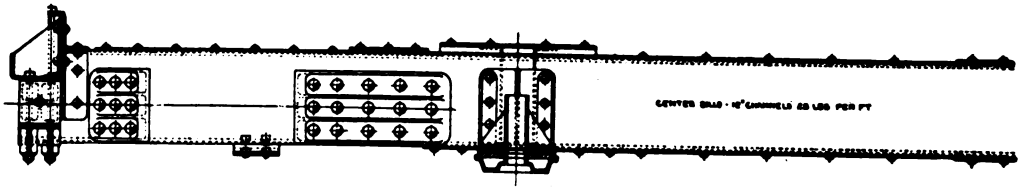


FIG. 9

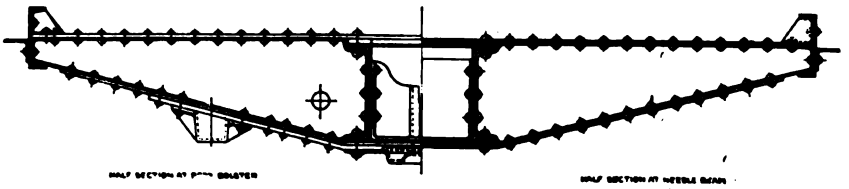
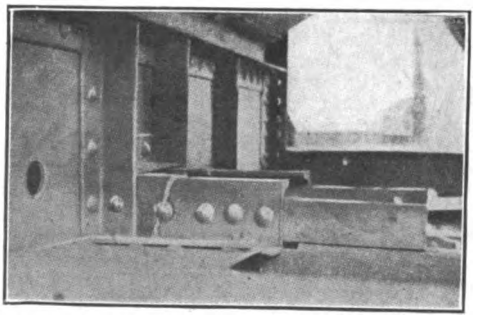


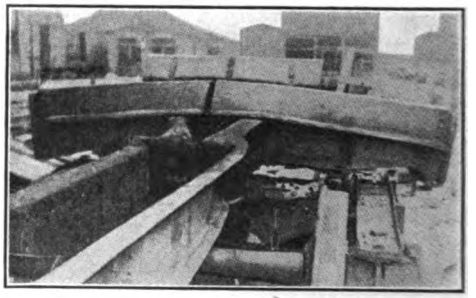
FIG. 10

sign future frames with a view to overcoming them.

One of the latest types of steel underframe construction which it is believed has the greatest strength for a given weight is shown in Fig. 9 and Fig. 10. The center sills are continuous and the cover plates extend through the body bolsters as far as the construction will permit. Auxiliary cover plates at the center have been provided, both top and bottom. The body bolsters have been carefully considered. (A few extra pounds of metal at this point will bring good results). Securely riveted to the center sills is a top plate 20 in. wide, which will throw a great deal of strength into the center column over the centre plate, where the failures show we have the most work to do, and also acts as a gusset, strengthening the frame against lateral forces. The back lugs have been extended to the bolster and act as stiffners for the sills. The area of the cross section at the bolster is between 24 and 25 square inches, which we believe should be the minimum for a thirty-ton car. The center line of the coupler has been placed one inch below the neutral axis of the center members, this being a feature which does not seem to have been given proper consideration in the past. By keeping the force



A Very Common Failure Where Draft Arms are Riveted to Center Sills.



Steel Center Sills Buckled Within 12 Inch Back of Body Bolsters.

thrown against the car near the center of the draft sills, not only the liability of buckling but the breaking down at the bolsters is reduced to a minimum. Car designers should arrange the trucks and underframes so that this can be accomplished.

In connection with the above improvements, the use of friction gears is strongly recommended, it being shown that the number of broken couplers, knuckles, pockets, followers, springs and total failures are comparatively few with the use of friction gears, as compared with the use of the

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various types of spring gears. In closing his paper Mr. Fritts offers as a relief to the present situation, the following suggestions:

First.—Re-enforcing the older types of cars that will not stand the expense of a steel underframe, with a long metal draft arm that extends through and over the body bolster. This in turn to be re-enforced, or backed up with good, heavy compression timbers.

Second.—On such cars as will permit of the expenditures, the application of a carefully designed steel underframe.

Third.—In all cases apply the draft gear that will destroy the greatest amount of shock with the entire elimination of recoil.

Fourth.—The adoption of a standard specification for the testing of draft gear to determine its shock absorbing capacity, and amount of recoil, before purchasing.

Fifth.—Substitute for the present wooden roof an all metal one as soon as it has been demonstrated what the proper construction should be.

Hydraulic Transmission in Railway Cars.

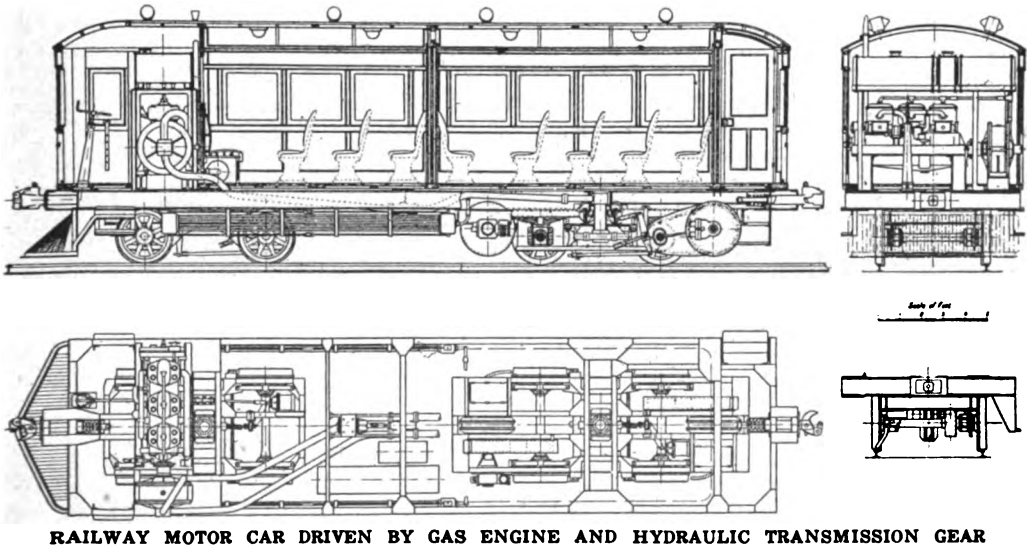
IN a recent article appearing in the "Engineer" the Hele-Shore System of hydraulic transmission combined with internal combustion engines, is discussed. Heretofore the great drawback to the use of the internal combustion engine for hauling heavy motor vehicles as compared with the steam engine, has been its lack of flexibility, which renders necessary the introduction of the step-by-step cog-box with its severe limitations. In the Hele-Shore system, the transmission of the power of the engine to the road wheels is affected by means of the Hele-Shore pump coupled direct to the engine and driving two hydraulic motors, operating by chain gearing the two axles of the rear bogie. A large variation of speed is obtained by this system and the direction varies according to the side of the axis to which the frame is moved. The oil under a pressure up to 2,000 pounds per square inch is transmitted from a central shaft through a heavy steel pipe to the two hydraulic motors on the rear bogie and the rotary motion of the motors is transmitted to the bogie axles by means of heavy chain gearing. As the speed of the oil motors is proportional to the amount of oil delivered by the pump a continuously variable and reversible gear is provided.

The liquid used in this system is ordinary lubricating oil, and thus all working parts are, it is claimed, perfectly lubricated, wear being reduced to a minimum. There are no piston rings, packing, or parts requiring renewal, and any oil which may leak past the plungers of the pump or motors is returned to the system by means of a small auxiliary pump. Safety valves are fitted on the pipe system.

Tests of the carriage on a siding of the Midland Railway at Burton-on-Trent sufficed to confirm the chief claims made for the hydraulic system. The principal advantage of this method of traction would appear to be the great starting effort which can be applied to the driving wheels without the shock which frequently acompanies the use of a clutch and spur gearing. The car was started, stopped, and reversed with ease by the manipulation of a hand wheel, which moves the guide frame of the pump.

The Keokuk Dam.

THE illustration at top of following page shows the great dam recently completed across the Mississippi River at Keokuk, Iowa. The construction of this giant monolith across the father of waters, has created a navigable lake for 65 miles back up the stream. The construction of the dam and its power houses have cost $27,000,000. The tremendous turbines which have been installed, the largest in the world, generate 200,000 H. P., 60,000 of which are transmitted to St. Louis. The dam proper is practically a mile in width extending from Keokuk, Iowa, to Hamilton, Illinois, the structure being 53 feet high keyed to the river bottom and consisting of 119 spans. The largest power house in the world has been built on the Keokuk side of the river.



RAILWAY MOTOR CAR DRIVEN BY GAS ENGINE AND HYDRAULIC TRANSMISSION GEAR

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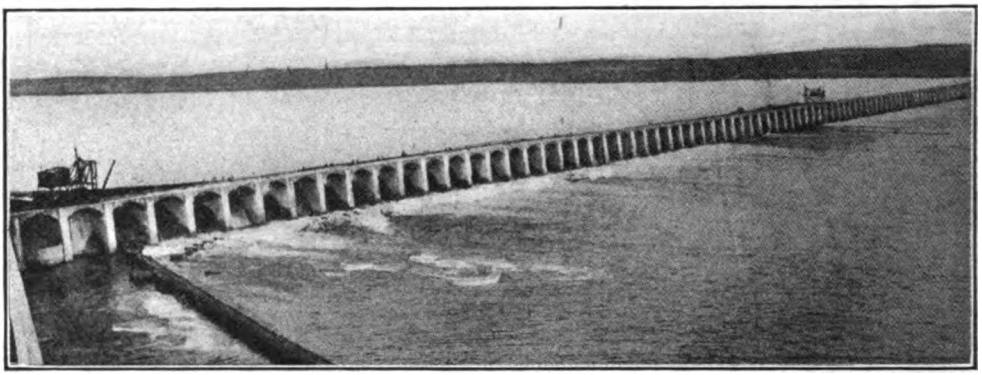


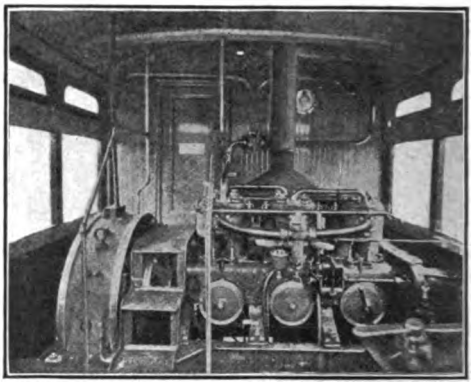
THE KEOKUK DAM WHICH STRETCHES ACROSS THE MISSISSIPPI RIVER FROM IOWA TO ILLINOIS. COST $27,000,000. AND WILL DEVELOP 200,000 H. P.

Electrical

The Dracar.

THE following illustrations show one of the "dracars" built for the Missouri, Oklahoma and Gulf Railroad, by the Drake Railway Automotrice Company. This car uses a gasoline engine to drive an electric generator whose energy is transmitted to motors geared to the axles. In other words, it is a gas-electric car which may be compared with the modern interurban trolley car but with trolley removed and power plant installed in the forward end. The power plant shown by Fig. 1 consists of a multi-cylinder gasolene engine direct connected to a 500-volt generator, shown on the left of the photo, both of which are mounted on one continuous subbase. The gasolene supply is caried in two tanks cross-connected and arranged so that either may deliver the gas to the carburetor. The cylinder water-cooling system is placed on the roof of the car, the hot water circulating through same. In winter a portion of the jacket water is circulated in the car heating system.

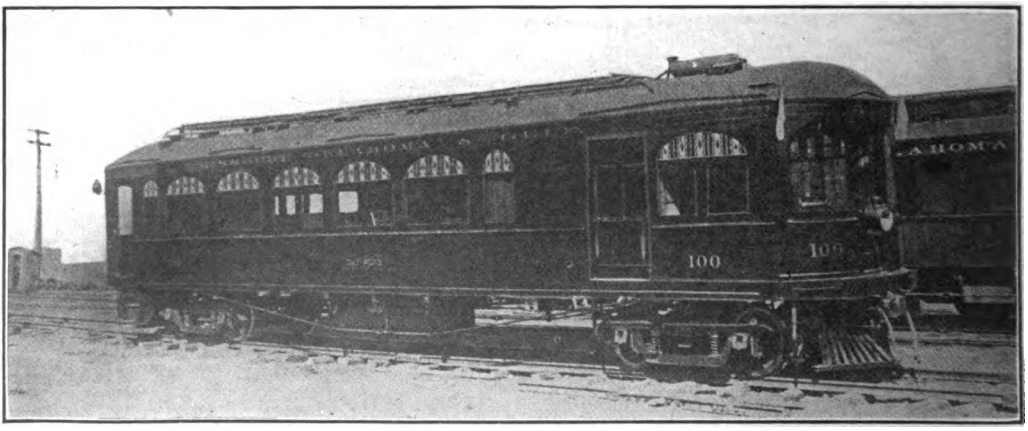
The power unit is remarkably simple and reliable. It is more of the automobile type of engine and can be easily cranked by one man, and mechanical starting means are unnecessary. One of the greatest advantages, and one which marks superiority is that perfect self-operation can be



PASSENGER CAR PEROLI GROUP, SHOWING GAS ENGINES AND ELECTRIC GENERATOR.

obtained in either direction. Since the power unit is at one end, it means that the unit can be controlled from a distant point, or the other end of the car.

The rear platform of each car is supplied with duplicate controller, air valves, etc. The controller is arranged in such manner as to give the motor-



GASOLINE-ELECTRIC DRACAR ON THE MISSOURI, OKLAHOMA AND GULF RAILWAY.

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man control over the engine as well as the electric current generated by the group.

The car shown in the photograph is 56 feet over bumpers and nine feet six inches wide. The total weight complete is 65,000 pounds.

An Electric Cable Lift Bridge.

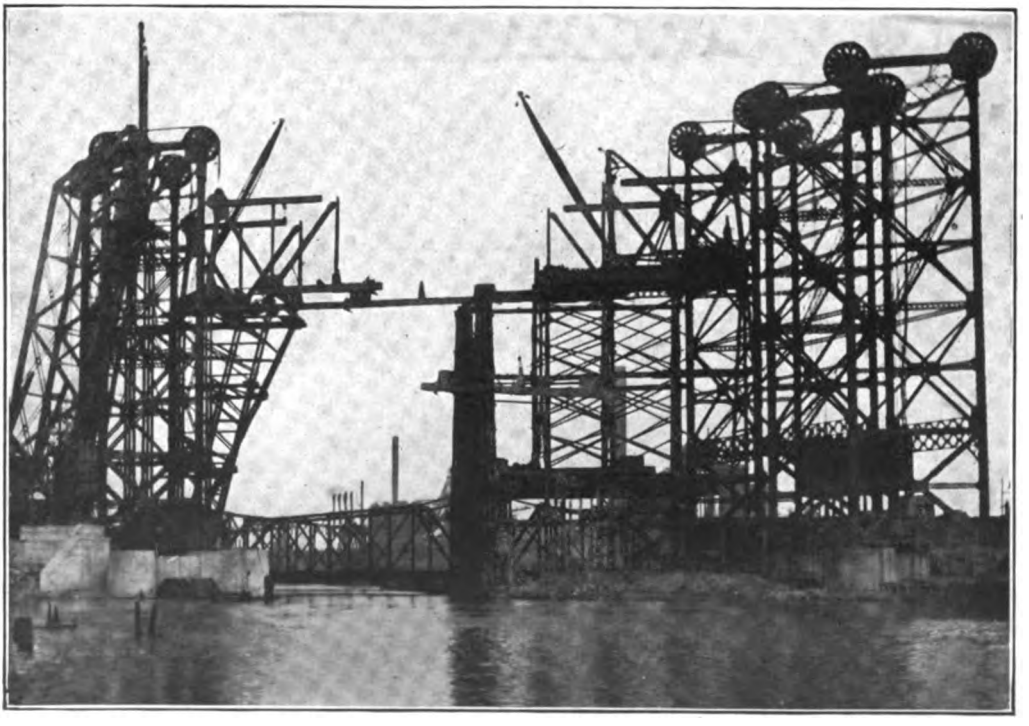
THE accompanying illustration show the constructed view of a new electric driven cable over Lift Bridge, at South Chicago. This interesting structure carries the four tracks of the Pittsburgh, Fort Wayne & Chicago Ry., and will replace a double track swing bridge. It consists of two double track vertical lift cable operated bridges of the Waddell & Harrington type placed together but electrically operated independently. They measure 210 feet long, crossing the stream at a skew of 50 degrees and giving a channel 140 feet wide with the clear headway for shipping of 120 feet.

The spans are being erected on falsework at this elevation, an opening 80 ft. wide being left to enable vessels to pass. It may be stated that the east tower of the north span was erected with a guy derrick designed specially for this work with an 85 ft. mast and a 70 ft. boom. This mast is built of two 24 inch 80 lb. I beams, with an 18 inch 55 lb. I beam placed horizontally between their webs as a separator and with lacing over the flanges of the 24 inch beams. The boom is built of a pair of 18 inch 55 pound I beams, with lacing over the flanges and there are eight guys of 1 1-4 inch plow steel rope and the spread of the guys is only 16 ft. from the foot of the mast.

As soon as the tower was completed, the adjacent east tower of the south span was erected by a 68 ft. trussed wood boom, 16x16 inches and one of the tower posts of the south span was utilized as a mast, the boom seat and topping lift brackets being of special design and riveted to the tower post. The swing bridge of the Lake Shore & Michigan Southern Ry., is parallel with an only 25 ft. from the lift bridge and its end swings under the north span of the latter and it was necessary to build the falsework so as to avoid interfering with this bridge. This was done by placing in the falsework two 103 ft. girders on the side nearest the swing bridge, and three top chords lengths of the span side by side on the side furthest from that bridge. The girders and chord sections were all at an elevation of 40 ft. above the water which was sufficient to clear the swing bridge when open. Upon these temporary steel spans was erected the upper part of the falsework for the trusses.

A timber knee-brace, on the west side of the river resting on the pier and inclined outwards over the channel will support two panels of the truss (52 ft.) on the longer side of the skew and one panel (26 ft.) on the short side. The bottom chord connections of two of the 70 ft. end sections of the chords will come over the 80 ft. ship channel which is kept open for navigation, and the cantilever ends of the chords will be supported by a mule traveler on the main falsework while the connection is being made across the channel.

The cables slung across the river from the 15 ton sheaves on the towers will help to support the chords till the truss is completed. The erecting force averages 30 men. The weight of steel is about 550 tons in each of the four towers and 1100 tons in each of the two spans. The heaviest single pieces handled weighed about 60,000 lbs.



THE STEEL GUY DERRICK SHOWN IN THE EXTREME LEFT OF THIS PHOTOGRAPH, WEIGHS COMPLETE 30 TONS AND HAS A 70 TON CAPACITY BOOMED OUT 30 FEET. THE BOOM TO THE RIGHT OF IT SET 122 TONS OF STEEL IN SEVEN HOURS.

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Terminal Improvements

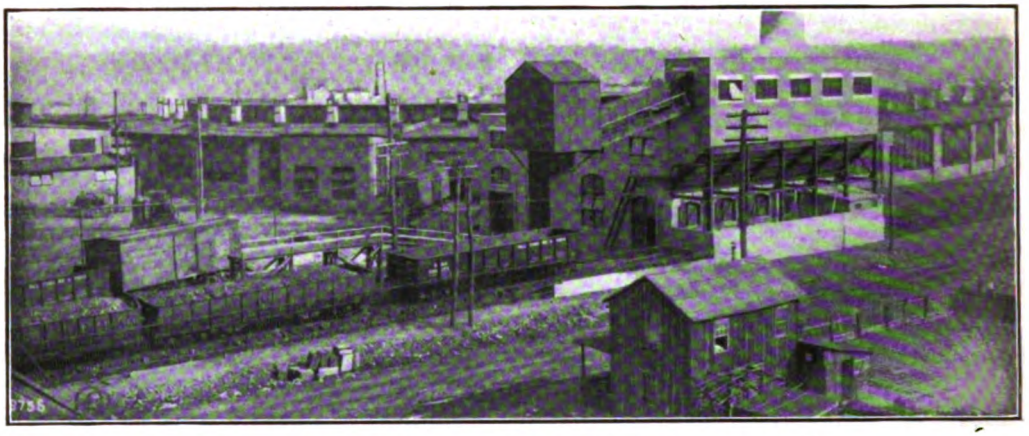
The Baltimore & Ohio Improvements at Cumberland, Md.

THIS terminal, referred to herein, is situated at the foot of the eastern slope of the Allegheny Mountains near the convergence of the lines of the Baltimore & Ohio from the west and is a terminus for the district lying west of Washington and Martinsburg. Both passenger and freight traffic through this point is extremely heavy. Practically all of the locomotives used in this territory are of the heavy Mallet and Mikado types in freight service and the heaviest type of Pacific in passenger service.

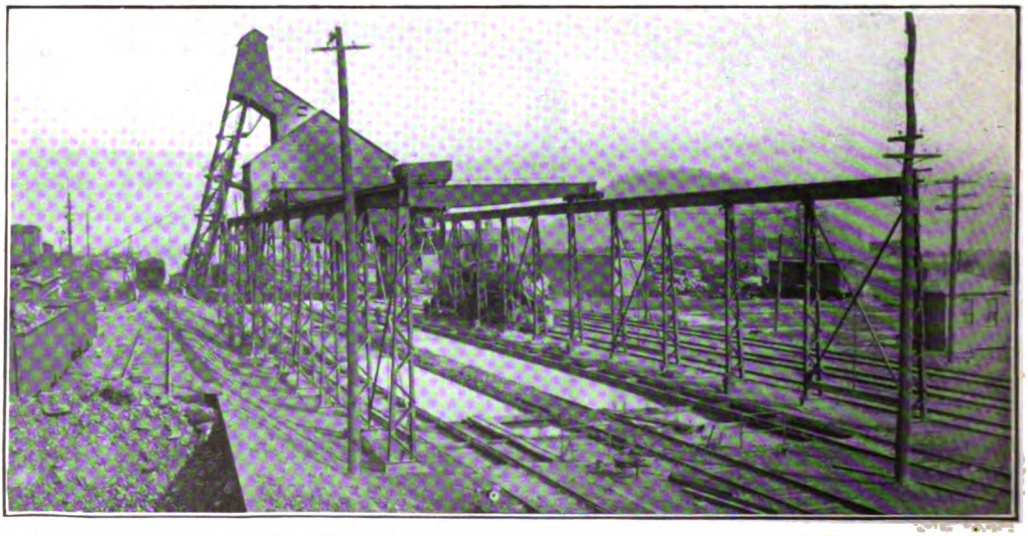
The old engine terminal had become entirely inadequate to properly take care of the heavy locomotives. This situation was rendered more acute by the extremely cold weather that prevails for relatively long periods. Sufficient ground space for the new terminal was available alongside of the old facilities. The improvements consisted of a round house with a 100-ft. turntable, a double cinder pit, a reinforced coaling station, a sand house and a small power house, all conveniently arranged and embodying an up-to-date locomotive terminal with buildings and other facilities of permanent construction.

In order to accommodate the large Mallet locomotives the length of the roundhouse was made 110 ft. There has been constructed at this time 31 stalls and space is left for further extension. A deck type turntable 100 ft. long is used. The building is constructed with brick walls on concrete foundations with timber roof posts and beams supporting a wooden roof. The rear wall of the house is made up of brick pilasters with broad window spaces between with top and bottom sash counterbalanced with each other. The roof line is broken at the first row of posts near the front of the building so as to give a row of sash with narrow vertical louvre over each stall to provide light and ventilation.

On account of the types of engines handled consisting principally of Mallets, Mikados and large Pacifics, the engine pits are made 88 ft. long with side pit walls for a distance of 40 ft.



BALTIMORE AND OHIO'S LOCOMOTIVE TERMINAL AT CUMBERLAND, MD.



THE CINDER PIT, CRANE AND RUN-WAY AT THE BALTIMORE AND OHIO'S LOCOMOTIVE TERMINAL AT CUMBERLAND, MD.

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on the inner end made of sufficient width to provide bearing for jacking. The pit walls are extended 12 ft. outside of the house to prevent track settlement. To facilitate handling repairs to Mallet engines, twin driving wheel drop pits, serving four stalls, were provided. In addition two stalls are provided with track wheel drop pits. These pits are furnished with hydraulic pneumatic jacks of 30 tons and 15 tons capacities respectively. All pits are drained by a special sewer system which returns the water to a central reservoir from which it is taken for use in the boiler washing system. Each of the stalls is provided with a smoke jack made of Trammite supported on a wooden frame with hoods 4 ft. x 12 ft. long.

The floor wearing surface is one-half of creosoted wooden blocks 3 inches deep and one-half of mastic rock 1-1-2 inches thick. Both types of floor are underlaid with 6 inches of concrete. The use of these two materials will give an effective test of their relative merits.

Closely adjacent to the engine house and connected to it by a covered passageway, carrying a track connecting to one of the stalls of the roundhouse, is a machine shop 70 ft. x 140 ft. Machine tool equipment is installed for taking care of light running repairs including a driving wheel lathe. The machine tools are driven by electric motors.

At the west end of the shop in a separate room toilet facilities for the men are provided. At the east end of the Machine Shop and attached to it is a two-story office building about 33 x 64 ft. This is a brick building divided by lath and plaster partitions into rooms for the Master Mechanic, Road Foreman of Engines, Roundhouse Foreman, Storekeeper and their clerks, also the Engine Dispatchers' room with train board.

The cinder pit is located between the coaling station and the engine house. This is a double pit of the submerged type having an overhead traveling crane with a grab bucket. The cinder pit stands practically full of water at all times. Into this the cinders are dumped and loaded by means of the grab bucket into cars standing on a track between the two ash pits. About 120 engines are handled over this pit daily. The economy of loading the cinders may be judged by the fact that one man working during the daylight hours only is able to load all the cinders.

The coaling station is located, as stated, in advance of the cinder pit. The structure is of reinforced concrete with bunker capacity for 600 tons of coal. The bunker is divided into four bins to handle three sizes of coal. Run-of-mine, coal crushed for locomotives equipped with stokers and special coal for passenger locomotives. As the greatest consumption is of run-of-mine two of the bins are used for storing this size.

It is arranged to deliver coal onto locomotives on four tracks passing beneath and along one end of the station. Run-of-mine coal can be taken on any one of these tracks, while on two tracks passenger coal can be taken and on another the stoker coal. The locomotive coal is received on a track passing one end of the station, the coal being dumped from the cars into a concrete pit and elevated by an inclined balanced skip hoist. The two skips are of 5 tons capacity each and capable of elevating 125 tons of coal per hour. The electric motor operating the hoist is controled automatically.

Provision is made for overhead storage of 20 cubic yards of dry sand with suitable pipes for delivering sand to the locomotives on any one of the four tracks.

Green sand storage of about 1200 cubic yards is provided in a sand house nearby the coaling station. The sand is dried by steam driers and elevated into overhead storage bins by compressed air.

All buildings are completely encircled by a 6-inch fire line supplying fourteen 4-inch, two-way fire hydrants. An outfit of hose is stored in suitable hose houses in strategic locations. This system is supplied by the fire pump in the power house having a capacity of 700 gallons per minute on which steam is kept at all times.

About 3000 ft. of water pipe varying in size from 10 inches to 14 inches was laid for supplying 3 penstocks erected for supplying engines passing to and from the new engine house. This was connected to existing water tanks and a 12-inch branch furnishes the power house with water.

The work was designed and constructed by Westinghouse Church Kerr & Company, of New York, under the direction of Mr. M. A. Long, Asst. to Chief Engineer as representative of the Railroad Company.

Interstate Commerce Commission

Report on the New Haven Wreck.

THE Commission's report which has been issued as the result of its investigation of the rear end collision at North Haven, Conn., on September 2nd, virtually declares that "man failure" all along the line was the cause of the disaster. In its report the Commission blames the crews of the wreck trains for lapses and scores officials and directors for "inefficiency of management." The new executive head of the road, Mr. Howard Elliott, is, of course, not held to the slightest degree responsible for what occurred, as his official connection with the system practically begun on the morning of the disaster.

The Commission sharply criticises both officials and directors for the promulgation of regulations which were permitted to become practically dead letters and for not seeing to it personally that operating conditions were what they should have directed them to be. The report also points out that antiquated signals and old wooden cars unsuited by construction for such traffic as they were expected to accommodate, were in use at the time. While it is hardly fair to severely criticise the New Haven on account of the employment of wooden passenger cars

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inasmuch as hundreds of other roads in the country are still operating under similar conditions, it is plain that the demand for the employment of steel cars is becoming more general and emphatic each day, and that public opinion will force the railways to employ them as quickly as old equipment can be disposed of. Commissioner McChord indicates the result of a similar recent accident at Tyrone, Pa., in which the equipment was all steel and in which none of the passengers were killed, as an object in favor of the use of steel equipment.

While the accident was largely the result of disobedience to orders, the Commission blames the managers of the road, who it holds, employ no proper method to guarantee obedience to its rules and regulations. For this reason the immediate adoption of an adequate system of superintendence and supervision which will give those in authority definite and positive information as to whether or not the safety requirements and rules of the railroad are observed, is demanded.

The report points out that at a meeting of the directors of the New Haven, after disasters at Bridgeport and Westport, a resolution was adopted directing President Mellen, then at the head of the system, to leave nothing undone "which in the judgment of himself and his associates, will conduce to greater safety in the operation of the road, and that there shall be no limitation placed upon the installation of signals, safety appliances, or anything else which will improve the safety of passenger travel upon this company's lines."

There the directors stopped, the report says. They did not see to it that their resolution was carried into effect.

"This typifies the whole situation," declares Commissioner McChord. "They assumed the vote was self-enforcing.

"The president, general manager and superintendents issued orders that all rules should be obeyed and that employes should take all precautions for safety.

"But no intelligent system was devised by which to ascertain when rules were disobeyed.

"Rules were disobeyed largely and only a small proportion of these violations was made the subject matter of reports to officials.

"Of some of the rules, as has recently been said by the general manager of this railroad when he issued new ones in their place, there had been 'convincing demonstration' of their inadequacy.

"Dereliction of duty by those who are charged with the making and with the enforcement of safety regulations cannot fail to weaken respect for all rules and to render nugatory to a large extent all efforts to maintain effective discipline. Rules that are not intended to be enforced have no proper place in a railroad company's code of regulations, and when the operating officers of a railroad permit rules which have been established to secure safety to be violated with impunity, they cannot reasonably expect to escape responsibility for the consequences of such violations."

The report contains no recommendations, except by inference, and no orders, as the Interstate Commerce Commission is without authority to control or supervise the operation of trains.

Tyrone Wreck Report.

IN the Commission's report on the rear-end collision between two passenger trains on the Pennsylvania Railroad on July 30th, at Tyrone, Pa., which resulted in the death of one employe and the injury of 126 passengers, it is held that the accident was due to the failure of three men on locomotive to observe and heed the signal. The trains were being operated under the automatic block system which was in good working condition, and the Commission holds there was no excuse for the failure of all three men to observe the signal.

"A consideration of accidents of this character," says the report, "leads inevitably to the conclusion that even the most complete and modern system of fixed signals is not adequate and calls attention to the necessity of automatic train stopping devices."

The report says that "the substantial construction of the modern steel cars of these trains is, without doubt, the reason that none of the passengers were killed."

Report on Pacific Coast Wreck.

CARELESSNESS of a flagman, disregard of regulations by a motorman, and "failure of the railway company to provide an adequate method of operation to insure the safety of trains," were the causes, according to a report of the Commission of the rear-end collision on the Pacific Electric Railway, near Los Angeles, Cal., on July 13th, in which fourteen passengers were killed and 200 injured.

The report showed that the division on which the accident occurred was operated by time card, "without signals or orders and with no means of spacing trains except by vision." In the case of this accident the flagman of the train in advance failed to notify the rear train and the motorman of the rear train failing to control his speed.

The report of Inspector Belknap severely criticized the railway company for not providing safe methods of operation and suggested the installation of an automatic train control system, in successful operation on other electric lines.

Extension Granted on Express Rates.

AFTER giving supplementary consideration to the express decision, the Commission has finally acceded to part of the request of the express companies and extended the time within which the reduced rates are to go into effect. The matter has been pending before the Commission for some time, and has been the subject of conference, but it was only at the last moment that an agreement was reached to extend the time.

The reduced rates were to have gone into effect on October 15th, but it was conclusively proven to the Commission that the express companies find it impossible to print their new tariffs by that time. Wherefore it has been agreed to give the companies until December 1st for compliance with the decision issued last spring. The notice issued by the Commission in this connection reads as follows:

"The Interstate Commerce Commission has extended the effective date of the order in the

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above-entitled proceeding from October 15, 1913, to December 1, 1913.

"The Commission declines to revise the scale.

"Upon showing that further time for preparation of tariffs is necessary and that work is being prosecuted with diligence, application for further extension is granted.

Hearing on New Forms of Railroad Reports.

WILLIAM J. MEYERS, statistician of the Interstate Commerce Commission, has issued a notice to carriers in which he says that the Interstate Commerce Commission has set for hearing at 10 A. M., October 27, 1913, at its hearing room in Washington, D. C., the matter of revision of report forms used by it in receiving annual reports of carriers and carrier corporations within its jurisdiction. In this connection a tentative draft of a revised annual report form will be submitted for discussion at that time. Certain matters in this tentative draft are incomplete, one of which is the subject of apportionment of operating expenses to the class of service in which incurred; another is the matter of returns to be required regarding service and compensation of employes. While suggestions regarding these matters are particularly invited, the entire report will be subject to review and criticism. All persons interested in the subject are invited to attend the hearing above mentioned, and to present their views to the Commission.

Valuation Districts.

THE Commission has announced that each of the five districts into which it has divided the country to make a physical valuation of the railroads contains approximately 50,000 miles of railroad. The title of each district, the city designated as headquarters and the States and territories included in each are as follows:

Eastern.—Washington, D. C.; Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, Vermont, Virginia and West Virginia.

Southern.—Chattanooga; Alabama, Florida, Georgia, Indiana, Kentucky, Mississippi, Ohio, Panama, Porto Rico, South Carolina and Tennessee.

Central.—Chicago; Arkansas, Illinois, Iowa, Louisiana, Michigan, Minnesota and Wisconsin.

Western.—Kansas City; Colorado, Kansas, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota and Texas.

Pacific.—San Francisco; Alaska, Arizona, California, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming.

Order in Import Rate Case.

THE Commission has ordered that the railroad rates on imports westbound from New York and Boston, shall be the same for two years.

This ends the import rate case, which has dragged along for several years and in which the two cities fought for advantage.

Commission Refuses to Re-Open Connecticut Commuters' Case.

THE Commission has refused to re-open the Connecticut commuters' fare case as asked by the Connecticut Commuters' League. The Commission, three months ago, fixed commutation rates between New York City and Connecticut at eight per cent less than former rates, and the Commission believes these rates are reasonable.

Commission Objects to State Interference.

THE Commission in a brief to the Supreme Court in the so-called Shreveport cases, strongly contends for power to prevent discriminations against inter-State commerce by State Railroad Commissions.

The conflict between Federal and State jurisdiction in the regulation of railroads is sharply drawn in these cases, which grew out of orders by the Texas Railroad Commission, alleged to be discriminatory in favor of Houston and Dallas, Texas, and against Shreveport, La.

The Inter-State Commerce Commission ordered the Houston, East and West Texas Railway Company and the Texas and Pacific Railway Company to remove the discrimination resulting from the exaction of rates on traffic from Shreveport to Texas points that were relatively greater than the rates maintained on like traffic to the same destinations from Dallas and Houston. The rates on traffic from Houston and Dallas to other Texas points were made by the Texas Railroad Commission and the railroads contest the power of the Interstate Commerce Commission to consider these intra-State rates in connection with inter-State commerce.

P. J. Farrell, the Commission's solicitor, holds, however, that the purpose of the Texas State rates was to discriminate against inter-State commerce and that Congress has clothed the Commission with power to prevent this. The proviso of the Interstate Commerce Act which exempts intra-State traffic from the regulation of the Interstate Commerce Commission refers, the solicitor contends, to traffic wholly within one State, which does not affect any other State.

To construe the law otherwise, Mr. Farrell continues, would inevitably have the effect of clothing the individual States with control over a very large portion of the inter-State commerce of the country and of rendering impossible proper regulation of the remaining portion of that commerce.

Boston and Maine Petitions for Increased Rates.

COMMISSIONER PROUTY, at Boston, on September 23rd, heard the petition of the Boston and Maine for an increase in transportation charges. The Company wishes to revise its tariff so as to augment its gross receipts by about ten per cent.

The road's case was outlined by its general solicitor, Edgar J. Rich, who said that the road was confronted by a serious situation. For July, 1913, the net corporate income was only $54,560, as contrasted with $407,302 for July, 1912. For September the decrease in gross operating revenues to the fourteenth of the month had been at the rate of $9,500 per day.

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This financial condition was due, Mr. Rich said, to the great increase in the rate of wages and the cost of hiring freight cars and the handling of traffic which resulted from a congestion due to a moderate increase in business, and a large increase in interest charges. The advance in wages, he said, since 1912, amounted to about $3,000,000 a year or the equivalent of a seven per cent dividend.

Counsel said that nearly $31,000,000 was imperatively needed during the next two years for equipment, as follows: 10,000 freight cars, $12,000,000; 100 locomotives, $1,400,000; 100 steel passenger cars, $1,200,000; improvements on account of safety, $7,582,000, and improvements which would result in operating economies, $8,670,000.

Higher Commodity Rates for Missouri Valley.

SUBSTANTIAL increases in certain commodity rates between Missouri River points, Kansas City, Omaha, St. Joseph and Sioux City, will be permitted to go into effect as the result of a decision issued by the Commission. It was held that the advanced rates will not result in excessive revenue to the railroads, and when certain modifications shall have been made as agreed between the roads and the shippers the Commission's order of suspension will be vacated.

The decision was written by Commissioner McChord, who pointed out that while the law casts upon the roads the burden of showing that the increased rates are reasonable, it is but fair that parties at whose instance suspensions are ordered should present to the Commission all facts, circumstances, conditions or reasons, which, in their opinion, tend to show that the increases should not be allowed.

Lake Traffic and the Panama Canal.

IN compliance with the Panama Canal Act of 1911, the Pennsylvania Railroad has made application to the Commission for permission to continue its ownership and operation of steamship lines on the Great Lakes. The Panama Act requires all railroads to dispose of the ownership of competing water transportation lines, excepting where the Interstate Commerce Commission gives them permission to continue in control of such lines.

Private Car Investigation Extended.

THE Commission has directed that "all individuals, firms, companies and corporations owning or operating cars and other vehicles and instrumentalities and facilities of shipment or carriage of property in interstate commerce" be made defendants in the commission's investigation of private car lines and the allowances paid to them by the trunk line railways.

The private car line investigation was begun by the Commission more than a year ago on complaint that the operation of such car lines was unreasonable and discriminatory and that the allowances to them by the trunk lines were excessive. By the terms of the first order only the railways were made respondents in the proceedings. By the new order the owner of every private car line is brought directly into the case.

The intimation is abroad that information already developed by the inquiry is of such a character that it may warrant not only a positive order by the Commission against private car lines, but probably action by the Department of Justice.

Steel Car Data of Pullman Company.

OFFICIALS of the Pullman Company are preparing figures regarding the number of wooden and steel cars in service in the United States for submission to the Interstate Commerce Commission, which presented a request for such figures following the latest wreck on the New Haven road. An official of the Pullman Company states that his company has manufactured nothing but steel cars for the last three years. "We are making them as rapidly as possible," he says, "and are supplying them to all the railroads, automatically retiring the wooden cars."

New Defect in Steel Rails.

IN a report recently made public, the Commission recommends a searching investigation into the question of steel rails. The Commission's experts have located a new defect in rails known as "transverse fissure." Commenting on this H. W. Belknap, chief inspector of safety appliance of the Commission, says that "the insidious character of these fissures and their menace to safe travel by rail fully justify the conclusion reached in previous reports that there is an absolute necessity of making a complete investigation of track and rail conditions to determine the effect thereon of the recent types of locomotives and cars with their greatly increased wheel loads."

The report says: "this condition is extremely grave," and quotes James E. Howard, engineer-physicist of the bureau of standards, as follows:

"No method has been found capable of locating incipient interior fissures which it should be remarked, do not present oxidized surfaces. Primarily the formation of a transverse fissure is the result of an overload for that particular rail from whatever point the subject is viewed."

The Commission will invite representatives of the railroads and manufacturers of rails to confer with the experts of the Commission to see if something cannot be done to remedy this particular defect.

Samples as Baggage.

THE Commission has recently issued a ruling to the effect that sample baggage carried for display may be checked by a passenger over a railroad but such samples may not be sold or distributed at the point to which they have been checked as baggage.

"Such articles," the Commission holds, "may lawfully be sold or distributed at any point to which they have been shipped as mail, freight or express, and they may lawfully be shipped from a point to which they have been checked as baggage for use as samples or for display."

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TRAFFIC.

Traffic Conditions in the South.—While the railroads of the Middle West and Northwest are likely to suffer in tonnage records on account of the failure or partial failure of some of the grain crops, conditions throughout the Southeast are unusually good and the railroads of that section expect a heavy traffic for the fall and winter. Shippers are being called upon to assist them in providing an adequate car supply as a heavy demand is anticipated. Steps are also being taken to provide for the more expeditious handling of cars at terminals and transportation points. Shippers can render assistance by loading and unloading cars as promptly and quickly as possible, thus avoiding unnecessary detention and also by loading cars to their full capacity. Trade and commercial bodies should urge upon their members the importance of securing the maximum efficiency in the employment of cars.

LEGISLATION.

Tariff Bill Becomes Law.—On October 3rd, at 9 P. M., President Wilson signed the tariff bill, thus putting into effect one of the most far reaching revisions of tariff rates and revenue laws ever enacted in this country. The bill which was passed four years after President Taft signed the Payne-Aldridge law, is the result of more than nine months of work in Congress.

A new income tax, applying directly to the incomes of citizens; the abolition of all tariff on scores of items of immense importance to American industry and American consumers, and a heavy reduction of tariff rates on most of the articles in general use in this country, are its chief features.

While certain portions of the new law do not take effect at once, most of its provisions and almost all the direct tariff reductions do.

The Federal Government has been spending nearly a billion dollars a year, and the new tariff law will raise less than one-third of that sum. Recent estimates by tariff experts in Congress predict that the rates will raise $249,000,000 a year, and that the income and corporation taxes will raise $122,000,000. The remainder of the Government's great income is made up principally of internal revenue taxes and postal receipts.

The income tax probably will bring the new tariff law most forcibly to the attention of citizens.

A brief summary of the new tariff law as prepared for the Senate follows:

Average percentage of tariff rates as compared to the value of all imported merchandise—Old law, 37 per cent; new law, 27 per cent.

Value of annual imports added to the free list, $147,000,000.

Estimated revenue from all import rates—Old law, $305,000,000; new law, $249,000,000.

Estimated revenue from corporation and income, taxes—Old law, $37,000,000; new law, $122,000,000.

Altogether consumers in the United States probably will receive from abroad free of all tariff more than $1,000,000,000 worth of merchandise during the next year.

During 1912 the amount of "free imports" was more than $880,000,000, and when the tariff is entirely removed from wool, sugar, iron ore and cheap iron and other important items the total is expected to increase notably. Under the old law more than 53 per cent of all goods brought to the United States from all parts of the world paid no tariff, and that proportion will be increased by the new law.

The free wool provision of the new law takes effect December 1, 1913; the free sugar provision May 1, 1916.

Trespassing Laws More Needed than Steel cars.—Slason Thompson, of the Bureau of Railway News and Statistics at Chicago, has recently prepared a statement showing how much more effective in the conservation of human life would be the passage and enforcement of adequate trespassing laws, than the equipment of the entire transportation plant with steel passenger cars. In arriving at this conclusion, Mr. Thompson shows that of the total number of fatalities charged to the United States railroads in twenty-three years, nearly 54 per cent applied to trespassers, 25.7 per cent to employes through their own fault or mischance, 9.5 per cent to other persons through their own fault or mischance, 7.1 per cent to employes in accidents to trains, 2.2 per cent to passengers through their own fault or mischance, and only 1.7 per cent to passengers in accidents to trains. In other words, covering a period of twenty-three years, 91.2 per cent of all deaths on United States railroads occurred through the fault or mischance of the victim and for which the management or equipment could not be held responsible, while only 8.8 per cent were due to accidents to trains and nearly 50 per cent of these deaths were traceable to the negligence or carelessness of the individual who lost his life.

In concluding his analysis, Mr. Thompson says: "So long as legislators, commissions and critics rivet their attention on steam cars, which may cause, but never defer, a collision or derailment, the tale of railroad fatalities will grow along the line of the greatest percentage of causes."

Passenger Car Replacement Possibilities.—The "Wall Street Journal" asserts that there is probably no occasion to be alarmed over the latest bill introduced in Congress to compel railroads to substitute steel passenger cars for present wooden cars. Representative Allen, of Ohio, is the author of the measure, which aims to compel railroads to replace wooden passenger cars with cars of steel construction, and provides a penalty of $1,000 for each wooden car operated after January 1, 1918.

On April 15, 1911, Representative Esch, of Wisconsin, introduced a bill to prohibit, after January 1, 1912, the construction or use for the first time of any wooden passenger service car. A penalty of $1,000 for each violation was also one of the provisions.

On June 17, 1911, Mr. Talbot, of New York, introduced a similar bill to prohibit the use of wooden passenger service equipment after June 1, 1915, and also providing for a penalty of $1,000 for each offense.

The constant repetition of attempts to pass bills of this character foreshadow a successful effort in the not distant future. But desirable as substitution of steel or steel underframe for wooden construction would be, it is not likely

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that this desideratum will be realized for many years.

In the first place, the total annual steel passenger car capacity of the four big equipment companies is 3,500. This includes the Pullman, American, Standard and Pressed steel car companies. In 1910 there were 47,000 passenger cars in service on all the railroads in the country. At the present time there are something over 55,000. A very small proportion of these are now of steel construction. Five thousand would be a very liberal estimate of the number of steel passenger cars in use. There would, therefore, remain 50,000 wooden cars to be replaced. At the rate of 3,500 a year, which is the present forced capacity of the equipment companies, it would take fourteen years to replace the present wooden passenger equipment, unless capacity of the plants is very largely increased.

The cost of this replacement would be in the neighborhood of $600,000,000. In 1911, the Committee on Relation of Railway Operation to Legislation estimated it would cost $630,000,000 to replace wooden cars with steel. This, in itself, would not seriously tax the railroads. It would mean raising $150,000,000 a year, which they could probably do. It is not unlikely that if the railroads were compelled to make this substitution in a limited period of years, they would find it necessary to subordinate many other more pressing and important improvement and betterment needs during the process. Furthermore, steel passenger cars would earn no more than wooden cars, although cost of maintenance and damage might be materially reduced.

LEGAL.

Dealing Out Justice to Swindlers of the Railways.—Fines totalling $11,000 were inflicted and paid by Harry C. Shimer and Adolph Fortgang of the firm of R. B. Shimer & Co., of New York, who plead guilty to certain counts in indictments brought against them in the United States District Court, Southern District of New York, for bribing railroad employees to furnish names of consigners shipping to other consignees and for obtaining payment from the railroads of false claims for loss and damage on shipments of eggs. In passing sentence the court, in part, stated as follows:

"Mr. Shimer and Mr. Fortgang, both, I will say to each of you, if I should actually do what I ought to do in this case, in order to thoroughly vindicate the law and make an example for others, one which would have a salutary effect in deterring others from committing this and like offenses, the Court would fine you a sufficient amount to take from you and this firm, every cent of your ill gotten gains, and then, in addition to that fine add a long term of imprisonment and in this way all who are disposed to offend against the law and to indulge in grossly illegal practices to enrich themselves at the expense of others, would be taught a lesson, the existence of the law and that punishment is sure to follow.

"And now I want to say to you further, and to each of you, that so far as is within my power, I will see, and I know that the United States Attorney and his able assistants will see, and that the United States attorneys wherever they are and wherever an offence might be indictable, will see to it—and it is a warning and not a threat—that if you should offend against the law again in these respects, you need not expect to escape with a fine, for surely the penalty will be not only a heavy fine, but a long term of imprisonment, justly earned by a repetition of such an offence as this."

STATE COMMISSIONS.

Alabama.—The Alabama Railroad Commission has ordered the South & North Alabama to put into effect September 14th, a passenger rate of 2½ cents a mile. The road is operated by the Louisville & Nashville.

California.—On every station bulletin board and in all of its freight offices, the Southern Pacific Company is posting printed copies of the letter issued by the State Railroad Commission calling upon shippers to promptly load and unload freight cars to prevent a shortage. Railroad officials declare that the beneficial results from appeals sent out by the various commercial bodies in the State are already evident, but carelessness or delay may precipitate a stringency that would work immeasureable harm to the growers who wish to market their products.

Says the letter:

"To all Shippers and Receivers of Freight:

"During the next few months the preponderance of traffic will be outbound from California, thereby lessening the number of cars which will be available for local traffic.

"The Commission respectfully requests that shippers and receivers of freight in carload lots use every effort to load and unload cars in less than forty-eight hours free time permitted under our demurrage rules.

"Shippers are also requested to load cars to full capacity, which will materially reduce the number of cars needed to handle their business.

"Railroads are requested to handle promptly, when billed, all carload shipments and to move empty cars to loading points without delay; also to repair promptly for service all crippled and bad order cars.

"The Commission feels that a co-operation of shippers and railroads will assist materially in preventing a serious car shortage."

The State Railroad Commission, acting on the complaints of travelers, has ordered the Pullman Company to appear before it November 19th, and explain its "practices, rules and regulations."

Rates will not figure in the event, but its scope in other directions will be wide. These are some of the things the committee wants to know:—

How much the company depends on passengers' tips in figuring porters' wages.

Why upper berths are pulled down when not occupied, making lower berths stuffy and cramped.

Why the answer "no lowers left" so often proves to have been a mistake the next morning.

Why a passenger cannot get his berth made up when he wants it, but must await the porter's pleasure.

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Why berths so often are sold to more than one passenger with resulting confusion and annoyance.

Connecticut.— The Public Utilities Commission has sent a communication to General Manager, C. L. Bardo, of the New York, New Haven & Hartford, concerning banjo signals, suggesting the advisability of immediately installing for the information and guidance of engineers, conspicuous yellow signs to be placed 2,500 feet in advance of all banjo signals, which are not at the present time equipped with distant signals, until such time as the new automatic signals are installed.

Georgia.—The Brinson Railway Company has asked the State Railroad Commission for permission to issue $2,563,500 of refunding bonds. The officials of the company admit that they do no expect to place that sum in bonds on the market, but they hope to use half the issue as security for $1,250,000 worth of two-year-old gold notes to be paid within two years at the rate of six per cent. The bonds, if allowed, are to be for thirty years and to bear six per cent interest.

Kansas.—Henderson Martin, chairman of the Utility Commission, has sent notices to the commissions of Iowa, Minnesota, Nebraska, Oklahoma, Missouri and North and South Dakota, asking them to join in a movement intended to prevent a proposed increase in freight rates on manufactured products shipped from Eastern States to the Middle West.

Missouri.—The Public Service Commission has served upon railroads an order which provides that where a tariff contains increases or reductions a detailed statement must be filed with the Commission giving the reason for such reductions or advances at the time the tariff is submitted for the approval of the Commission. The order contains the rules of the Commission prescribing the form in which all freight and passenger tariffs by the railroads, street cars and steamboat companies shall be made and the manner in which they shall be filed with the Commission.

General Solicitor Clardy, of the Missouri Pacific Railroad, has notified the Public Service Commission that the railroad will not comply with the ruling of the Commission that through rates for continuous shipments over two or more lines must prevail over the higher local rates. Solicitor Clardy says such a rule is unjust, as extra work is required to transfer shipments from one line to another.

The Public Service Commission has ruled that it is unlawful for railroads to charge more than two cents a mile for transporting passengers who fail to buy tickets before they board a train, but in order to induce passengers to buy tickets, agreed to a penalty to ten cents to be collected from passengers paying on trains. This penalty is to be refunded on application at the general offices of the railroad. Heretofore, the railroads have been charging three cents a mile for persons paying their fares on the train.

Montana.—A sweeping investigation of all distributing rates charged by railroads operating in Montana from all distributing centers in the State has been ordered by the State Railroad Commission, and a hearing, at which commercial clubs from all over the State will be represented, was set for October 8th.

Nebraska.— The State Railroad Commission has notified the railroads operating in Nebraska to appear and show cause, in the first week in October, why its order No. 19, reducing freight rates from 20 to 60 per cent on all classifications except grain, lumber and coal, which was promulgated four years ago and suspended later to await the decision of the United States Supreme Court in the Minnesota rate case, should not go into effect.

New Jersey.— The Board of Public Utility Commissioners has refused to approve a proposed 99-year lease of the property and franchise of the Lehigh Valley Railroad Company, of New Jersey to the Lehigh Valley Railroad Company, of Pennsylvania.

Pennsylvania.— Steam railroad companies in Pennsylvania have been called upon by the State Public Service Commission to report how many steel and wooden cars are used in the transportation of passengers in the State.

The Public Service Commission has issued a statement regarding its position on the clause in the public service act, prohibiting issuance of passes to any but railroad employes in which it states:

"The Public Service Commission will not before January 1, 1914, pass upon the question as to the right of railroad companies to grant free passes to other than their employes."

Texas.—On account of delay in the work of reconstructing and standardizing the cut-off line of the Houston & Texas Central Railroad that runs between Mexia and Nelleva, the Railroad Commission has extended the time in which the work must be finished to January 1, 1914. The original order of the Railroad Commission required that the line be placed in good condition and a daily passenger train service each way established by September 1st.

ORGANIZATION.

September Meeting of Canadian Railway Club.—The September meeting of the Canadian Railway Club was held at the Windsor Hotel at Montreal on the evening of September 9th. A paper was presented by Mr. A. Crumpton, assistant engineer of the Grand Trunk Railway on "Railway Efficiency." A review of this paper will be published in a later issue of the "Railway World."

The Brotherhood of Trainmen Hold Meeting.—Between 1,000 and 1,200 members of the Brotherhood of Trainmen held a meeting in Red Men's Hall, Reading, Pa., August 31st. Representatives of the Brotherhood of Locomotive Trainmen, Locomotive Firemen and Engineers and Order of Railway Conductors were present. Mayor Ira W. Stratton welcomed the delegates at a short public session held at 1.30 P. M.

Following the opening exercises the railroaders went into executive session when matters of mutual benefit and the advancement of the or-

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ders represented were discussed. While no definite information was given out, it was learned that the meeting was held for the purpose of taking steps to eventually merge all of the railroad organizations into one grand body which would make it one of the largest labor organizations in the world.

Fourth Annual Convention of American Manufacturers' Export Association.— Speaking before more than 300 delegates to the fourth annual convention of the American Manufacturers' Export Association at the Hotel Astor, September 25th, Charles M. Muchnic, manager of the Foreign Department of the American Locomotive Company, declared that a plan to force the Atlantic steamship combination to lower their ocean freight rates by a movement among the exporters to combine their tonnage for shipment in steamers chartered by themselves through some available steamship broker, who would receive only a nominal compensation for his services, had failed absolutely.

Mr. Muchnic declared that after he had investigated the "unprecedented rise in ocean freight rates since 1909, ranging from 50 to 150 per cent over those existing prior to 1908," he had reached the conclusion that the increase was due "not solely to the various steamship combinations, but mainly to the well known economic principle of supply and demand," due to the expansion of ocean commerce of the entire world which soon taxed every available steamer.

New Commissioner for Pittsburgh Commercial Club.—Ira S. Bassett, who has been appointed Commissioner of the Pittsburgh Commercial Club, was the originator of the "Made In Pittsburgh" Manufacturers' special train, which made its historic trip one year ago. It was one of the greatest of trade boosting tours, as it covered more than 5,000 miles and eighteen different States and thirty-six cities were profitably visited. The cars, engine and practically every detail of the entire equipment was made in Pittsburgh. Four special cars were devoted to exhibits, which, during the trip were inspected by many thousand people. One hundred business men accompanied by their wives made the tour. Mr. Bassett made this trip possible while he was connected with the Chamber of Commerce as traffic manager, which position he held for more than six years. Prior to that time he was with the Pennsylvania interests for eleven years. As Commissioner of the new organization he will have charge of the complete workings of the Club.

Meeting of Passenger Agents.—R. T. G. Matthews, Kansas City, Mo., was elected president of the American Association of Passenger Agents which held its forty-first annual convention at St. Paul, September 9th. The organization also voted to change the name to that of American Association of Traveling Passenger Agents. Other officers elected were: Vice-President, M. F. Bragg, Norfolk, Va.; secretary-treasurer, E. T. Monett, Chicago, re-elected. The 1914 meeting is conceded to San Francisco.

Society of Railway Financial Officers.— The Society of Railway Financial Officers concluded its three-day meeting, at Chicago, September 26th, with the election of the following officers: President, George A. Walker, Philadelphia, assistant treasurer of the Pennsylvania Railroad; vice-presidents, John E. Murphy, Chicago, treasurer of the Chicago & Western Indiana, and D. K. Kellogg, Richmond, Va., treasurer of the Richmond, Fredericksburg & Potomac.

Uniform Rate on Demurrage Planned.—Railroads affiliated with the American Railway Association have decided to authorize the supervision of freight car demurrage rules throughout the country by the organization's committee on relations between railroads, of which Arthur Hale is chairman.

This committee will appoint district supervisors whose duty it will be to see that demurrage rules are administered on a uniform scale throughout their respective territories.

Provision has been made that each railroad shall agree to furnish all necessary information and statistics and to pay a part of the expense incident to the supervision. This proportion will be fixed on the basis of the number of cars handled in each territory supervised.

Pittsburgh Chamber of Commerce Meeting.— At a special meeting of the Pittsburgh Chamber of Commerce, September 6th, that body went on record in favor of the repeal of the Sherman anti-trust law and the enactment in its place of a law to create a business commission, after the manner of the Interstate Commerce Commission to which disputes relating to the practices of business corporations can be referred.

A set of resolutions also was passed protesting against the placing of an import duty on bananas in the new tariff law. The resolutions stated that Pittsburgh consumed 2,830 carloads of bananas during the past year. The Chamber also adopted resolutions favoring the proposed constitutional amendment for the issue of $50,000,000 bonds by the State for the construction of roads.

Meeting of Second Congress of National Council for Industrial Safety.—The second Congress of the National Council for Industrial Safety closed a three-day session September 25th, with a banquet at the Hotel McAlpin, New York. The principal speeches were by Secretary W. B. Wilson, of the Department of Labor and Gov. J. K. Tener, of Pennsylvania.

At the final sessions of the convention, brief addresses on the progress of the movement for safety in industrial labors were delivered by R. C. Richards, Chicago & Northwestern Railroad; L. H. Burnett, Carnegie Steel Company; C. W. Price, Wisconsin Industrial Commission, and Dr. Lucian W. Chaney, Bureau of Labor.

Mr. Richards said that the vast majority of the American railroads have during the past three years, adopted the plan of safety, first, in the operation of their transportation systems. He said that his experience proved that the human element in labor of all kinds is the controlling factor in industrial accidents. The railroads have come to recognize that it is better to cause a delay than to cause an accident. It is the little accidents that make the big total of all accidents, and not the collisions which we see pictured as the cause of the great loss of life in the newspaper headlines. What we

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want to do on American railroads and are doing as rapidly as possible, is to eliminate the chance-takers. Every time an accident occurs it is a notice that something is wrong and should be immediately followed by a careful investigation for the purpose of bringing out the real truth so that the wrong may be corrected.

Roadmasters' Convention. — At the closing session of the thirty-first annual convention of the Roadmasters' and Maintenance of Way Association at the Auditorium Hotel, Chicago, in September, the following officers were elected for the ensuing year: President, T. F. Donahue, Pittsburgh; first vice-president, C. M. Groover, Albert Lea, Minn.; second vice-president, B. C. Doherty, Beloit, Wis.; secretary, L. C. Ryan, Sterling, Ill. It was decided to hold the next convention in Chicago.

ELECTIONS AND APPOINTMENTS.

Executive.

J. D. Abeles, second vice-president, Atlantic Southern. Headquarters, St. Louis, Mo.

E. N. Armstrong, director, Toledo, Peoria & Western R. R.

W. W. Baldwin, director, Toledo, Peoria & Western R. R.

W. G. Bierd, director, Iowa Central Railway.

Chas. N. Black, vice-president, United Railways of San Francisco. Headquarters, San Francisco, Cal.

John Claney, president, Memphis and Pensacola.

C. H. Dawes, director, Toledo, Peoria and Western Railroad.

Howard Elliott, director, Maine Central Railroad.

Arthur T. Hadley, director, New York, New Haven & Hartford R. R.

F. H. Head, director, Toledo, Peoria & Western Railroad.

H. E. Huntington, director, Iowa Central Railway.

Samuel L. Kamps, assistant to vice-president, Chicago Great Western. Headquarters, Chicago, Ill.

John B. Kerr, president, New York, Ontario & Western Ry.

Jess W. Lillienthall, president, United Railways of San Francisco. Headquarters, San Francisco, Cal.

Fred C. MacMillan, vice-president, San Antonio, Uvalde & Gulf R. R. Headquarters, San Antonio, Texas.

R. J. McCarty, vice-president in charge of accounts, Kansas City Southern. Headquarters, Kansas City, Mo.

A. B. McDonald, vice-president, Southern Pacific R. R. of Mexico.

T. P. Shonts, director, Iowa Central Railway.

DeRoo Weber, vice-president, Atlantic Southern. Headquarters, St. Louis, Mo., and Atlantic, Iowa.

W. M. Whitenton, vice-president, St. Paul & Kansas City Short Line R. R. Headquarters, Des Moines, Iowa.

Joseph Wood, director, Toledo, Peoria and Western Railroad.

Legal.

Lee Monroe, general counsel, Scott City Northern.

Financial.

Robert Abeles, Jr., treasurer, Atlantic Southern. Headquarters, St. Louis, Mo.

W. F. Bull, assistant secretary, Southern Pacific and the Louisiana Western. Headquarters, New York.

A. M. Dahler, treasurer, United Railways of San Francisco. Headquarters, San Francisco, Cal.

J. H. Lauderdale, treasurer and purchasing agent, Louisiana and South Texas lines, St. Louis & San Francisco R. R. Headquarters, New Orleans, La.

W. E. Paschall, assistant treasurer, Atlanta, Birmingham & Atlantic, the Georgia Terminal Company and the Alabama Terminal Railroad. Headquarters, Atlanta, Ga.

John M. Reed, secretary, Atlantic Southern. Headquarters, St. Louis, Mo.

R. F. Watkins, treasurer, Denver and Rio Grande R. R. Headquarters, Denver, Colo.

G. B. Willcutt, secretary, United Railways of San Francisco. Headquarters, San Francisco, Cal.

Accounting.

C. A. Chapman, auditor, Nevada Copper Belt. Headquarters, Salt Lake City, Utah.

L. J. Hensley, auditor, Kansas City Southern. Headquarters, Kansas City, Mo.

F. C. Uhlman, assistant general auditor, Western Maryland. Headquarters, Baltimore, Md.

P. E. Wooley, assistant auditor, Kansas City Southern. Headquarters, Kansas City, Mo.

Engineering and Mechanical.

George W. Abbott, division engineer, Boston Division, Boston & Albany R. R. Headquarters, South Station, Boston, Mass.

A. B. Adams, master mechanic, Beaumont Division, Gulf, Colorado & Santa Fe. Headquarters, Silsbee, Texas.

E. W. Alling, master mechanic, Shore Line Division, New York, New Haven & Hartford. Headquarters, New Haven, Conn.

G. B. Bagley, assistant engineer, Missouri Pacific. Headquarters, Kansas City, Mo.

William Baumterger, road foreman of engines, Lake Erie & Western. Headquarters, Lima, Ohio.

L. Beauman, division engineer, Stockton Division, Southern Pacific. Headquarters, Stockton, Cal.

R. A. Becket, superintendent of signals, Grand Trunk. Headquarters, Montreal, Que.

R. A. Bellingham, master mechanic, Apalachicola Northern. Headquarters, Ft. St. Joe, Fla.

A. F. Blaess, district engineer, Yazoo & Mississippi Valley. Headquarters, Memphis, Tenn.

W. L. Blair, superintendent of telegraph, New York, Chicago and St. Louis. Headquarters, Cleveland, Ohio.

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A. C. Breisch, master mechanic, Chicago, Rock Island & Pacific. Headquarters, Armourdale, Kansas.

J. E. Breyer, master mechanic, the Southern. Headquarters, Charleston, S. C.

C. L. Bunch, general foreman, the Southern. Headquarters, Spencer, N. C.

W. L. Butler, master mechanic, West Virginia general division, Chesapeake & Ohio. Headquarters, Hinton, W. Va.

A. W. Carpenter, valuation engineer, New York Central and Hudson River R. R.

P. J. Clark, superintendent of motive power, Georgia, Florida & Alabama R. R. Headquarters, Bainbridge, Ga.

J. C. Clifford, district engineer, northern lines, Yazoo & Mississippi Valley. Headquarters, Chicago, Ill.

T. W. Coe, superintendent of shops; Lake Shore and Michigan Southern. Headquarters, Elkhart, Ind.

Joseph Cole, superintendent of motive power, Vera Cruz Railway. Headquarters, Alvardo, Mexico.

A. Copony, master car builder, Western lines, Grand Trunk. Headquarters, Port Huron, Mich.

William C. Costigan, road master, Illinois division, Illinois Central. Headquarters, Chicago, Ill.

J. H. Daley, master mechanic, Old Colony division, New York, New Haven & Hartford R. R. Headquarters, Taunton, Mass.

I. S. Downing, master car builder, Cleveland, Cincinnati, Chicago & St. Louis and Peoria & Eastern. Headquarters, Indianapolis, Ind.

C. J. Drury, general foreman, St. Louis & San Francisco. Headquarters, Springfield, Mo.

G. H. Dryden, principal assistant signal engineer, Baltimore and Ohio. Headquarters, Baltimore, Md.

A. W. Duke, assistant supervisor of division No. 22, Pennsylvania Railroad. Headquarters, Osceola Mills, Pa.

George Duncan, mechanical superintendent, Atlantic, Quebec & Western. Headquarters, New Carlisle, Que.

M. H. Farrell, shop foreman, Western Allegheny. Headquarters, Kayler, Pa.

I. H. Farmer, right of way engineer, Seaboard Air Line. Headquarters, Portsmouth, Va.

E. Fuller, master mechanic, the Southern. Headquarters, Alexandria, Va.

G. A. Gibson, roundhouse foreman, Central Vermont. Headquarters, White River Junction, Vt.

J. H. Green, master mechanic, Halifax & Southwestern. Headquarters, Bridgewater, N. S.

W. C. Greening, master mechanic, Pere Marquette. Headquarters, Wyoming, Mich.

C. P. Harmer, chief clerk to general yardmaster, Western Maryland. Headquarters, Hagerstown, Md.

J. W. Hamilton, general yardmaster, Baltimore and Ohio. Headquarters, Cleveland, Ohio.

R. L. Hazelgrove, roadmaster, Illinois Central and Yazoo and Mississippi Valley. Headquarters, Water Valley, Miss.

H. J. Heilig, road foreman of engines, the Southern. Headquarters, Greensboro, N. C.

J. J. Hess, assistant engineer maintenance of way, Great Northern. Headquarters, St. Paul, Minn.

J. W. Highleyman, assistant master mechanic, Union Pacific. Headquarters, Cheyenne, Wyo.

C. B. Hitch, general foreman, Chesapeake & Ohio. Headquarters, Hinton, W. Va.

John L. Hodgson, superintendent, car department, Grand Trunk Pacific. Headquarters, Transcona, Man.

J. E. Hood, supervisor of bridges and buildings, Northern Pacific. Headquarters, Duluth, Minn.

W. O. Houston, division engineer, Michigan Central. Headquarters, Jackson, Mich.

W. F. Howard, general foreman, Gulf, Colorado & Santa Fe Ry. Headquarters, Cleburne, Texas.

George A. Hull, assistant mechanical engineer, Rock Island Lines. Headquarters, Silvis, Ill.

T. Keaveny, roadmaster, Second District, Oregon-Washington Railroad and Navigation Company. Headquarters, Colfax, Washington.

C. P. Klueppelberg, master mechanic, Gulf Line. Headquarters, Ashburn, Ga.

F. G. Kumkel, machine shop foreman, Minneapolis & St. Louis. Headquarters, Marshalltown, Iowa.

G. W. Lillie, mechanical superintendent, Second District, Rock Island Lines. Headquarters, Topeka, Kansas.

J. McCabe, master mechanic, New York Division, New York, New Haven & Hartford R. R. Headquarters, Harlem River.

W. P. McDevitt, general foreman, the Southern. Headquarters, Macon, Ga.

J. E. McLean, master mechanic, Kansas City Southern. Headquarters, Pittsburgh, Kan.

C. E. Magee, master mechanic, Gulf & Sabine River Ry. Headquarters, Fullerton, La.

S. R. Mathes, general foreman, Atlanta, Birmingham & Atlantic. Headquarters, Manchester, Ga.

Hugh Montgomery, superintendent of motive power and rolling stock, Rutland Railroad. Headquarters, Rutland, Vt.

F. W. Nelson, master mechanic, Western Division, New York, New Haven & Hartford R. R. Headquarters, Waterbury, Conn.

John Nilan, general yardmaster, Western Maryland. Headquarters, Hagerstown, Md.

M. H. Oakes, assistant master mechanic, Baltimore & Ohio Railroad. Headquarters, Cumberland, Md.

N. M. O'Laughlin, supervisor of signals, Northern Pacific. Headquarters, St. Paul, Minn.

W. Osborne, engineer, Maintenance of Way, Atlantic Southern R. R. Headquarters, Atlantic, Iowa.

F. O. Peoples, master mechanic, Ohio River & Western. Headquarters, Zanesville, Ohio.

John F. Plott, roadmaster, Illinois Central and Yazoo and Mississippi Valley R. R. Headquarters, Carbondale, Ill.

Joseph Pollock, master mechanic, Jefferson & Northwestern. Headquarters, Jefferson, Tex.

P. R. Powrie, district engineer, Chicago, Milwaukee & St. Paul Ry. Headquarters, Minneapolis, Minn.

F. Price, superintendent of car service, Grand Trunk Railway. Headquarters, Montreal, Que.

J. B. Quackenbush, road foreman, the Erie. Headquarters, Jersey City, N. J.

J. A. Read, general foreman of locomotive department, Georgia, Southern & Florida. Headquarters, Macon, Ga.

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C. H. Reid, master mechanic, Providence Division, New York, New Haven & Hartford. Headquarters, Providence, R. I.

Herbert Reid, locomotive foreman, Canadian Pacific. Headquarters, St. Ignace, Mich.

F. Rilner, master mechanic, Cincinnati, Georgetown & Portsmouth. Headquarters, Cincinnati, Ohio.

W. A. Rizor, foreman of water service, Chicago, Burlington & Quincy Ry. Headquarters, Greybull, Wyo.

George W. Robb, superintendent of motive power, Grand Trunk Pacific. Headquarters, Transcona, Man.

F. S. Robbins, assistant master mechanic, Pittsburgh Division, the Pennsylvania. Headquarters, Pittsburgh, Pa.

W. Roberts, locomotive foreman, Chicago Great Western. Headquarters, Hayfield, Minn.

T. J. Rodgers, assistant train master, Chicago Division, Baltimore and Ohio R. R. Headquarters, Garrett, Ind.

J. J. Romkine, locomotive foreman, Inverness Railway. Headquarters, Inverness, N. S.

P. Ryan, roundhouse foreman, Intercolonial Railway of Canada. Headquarters, Chaudiere Junction, Que.

C. H. Sanderson, chief engineer, Havana Electric Railway Light & Power Company. Headquarters, Havana, Cuba.

R. W. Schulze, superintendent, car department, St. Louis & San Francisco. Headquarters, Springfield, Mo.

J. W. Senger, master car builder, Lake Shore and Michigan Southern. Headquarters, Collingwood, Ohio.

William B. Skipworth, general foreman, the Southern. Headquarters, Columbus, Ga.

William H. Sloat, master mechanic, Dayton & Union. Headquarters, Dayton, Ohio.

C. J. Stewart, assistant mechanical superintendent, New York, New Haven & Hartford. Headquarters, South Boston, Mass.

John Sutherland, master mechanic, Iowa & Illinois. Headquarters, Clinton, Iowa.

J. L. Taylor, division engineer, Pittsburgh, Cincinnati, Chicago & St. Louis Ry. Headquarters, Louisville, Ky.

W. L. Thomas, master mechanic, Cananea Consolidated Copper Company's railway. Headquarters, Sonora, Mex.

W. B. Thomson, valuation engineer, Wheeling & Lake Erie R. R. Headquarters, Cleveland, Ohio.

John H. Tinker, superintendent of motive power and machinery, Chicago & Eastern Illinois. Headquarters, Danville, Ill.

D. W. Thrower, assistant engineer of maintenance of way, Illinois Central and the Yazoo & Mississippi Valley. Headquarters, Chicago, Ill.

H. C. Van Buskirk, mechanical superintendent, First District, Chicago, Rock Island & Pacific. Headquarters, Des Moines, Iowa.

J. H. Watters, master mechanic, Georgia Railroad. Headquarters, Augusta, Ga.

J. F. Watts, roadmaster, Illinois Central and Yazoo and Mississippi Valley. Headquarters, New Orleans, La.

C. E. Weaver, district engineer, Southern lines, Yazoo and Mississippi Valley. Headquarters, New Orleans, La.

J. N. Weaver, road foreman of engines, Baltimore and Ohio. Headquarters, New Castle Junction, Pa.

F. E. Wees, general foreman, Ann Arbor Railroad. Headquarters, Frankfort, Mich.

G. S. Weiler, acting general car foreman, Gulf, Colorado and Santa Fe. Headquarters, Cleburne, Texas.

M. E. Wells, general inspector, Buffalo division, Wabash R. R.

H. T. Welty, engineer of structures, exterior zone, New York Central & Hudson River R. R. Headquarters, New York.

R. F. Williams, division engineer, San Antonio Division, International & Great Northern. Headquarters, San Antonio, Texas.

S. D. Williams, Jr., division engineer, Michigan Central. Headquarters, St. Thomas, Ont.

L. E. Wingfield, master mechanic, Arkansas Central. Headquarters, Pan's, Iowa.

S. L. Wonson, assistant bridge engineer, Missouri Pacific. Headquarters, St. Louis, Mo.

Morris A. Zook, engineer in charge of valuation, Grand Trunk-Wabash joint lines in Canada. Headquarters, Buffalo, N. Y.

Operation.

James D. Beaver, assistant superintendent, Pittsburgh, Shawmut and Northern Railroad. Headquarters, St. Mary's, Pa.

S. K. Blair, general agent, New York, Chicago & St. Louis Ry. Headquarters, Ft. Wayne, Ind.

F. L. Brendel, superintendent of the Middle Division, Western Maryland. Headquarters, Hagerstown, Md.

L. C. Browne, assistant general manager, United Railways of Yucatan. Headquarters, Merida, Yucatan, Mex.

R. E. Clarke, superintendent of car service, Beaumont, Sour Lake & Western, the New Orleans, Texas & Mexico, Orange & Northwestern and St. Louis, Brownsville & Mexico. Headquarters, Houston, Texas.

George W. Coffin, general manager, Atlantic Southern. Headquarters, Atlantic, Iowa.

Engineering and Mechanical.

C. A. Cotterell, superintendent, Canadian Pacific Railway. Headquarters, Vancouver, B. C.

Carl F. Dilfer, chief clerk to superintendent, Eastern Division, Western Maryland Railroad.

John A. Droege, general superintendent in charge of operation, Western Grand Division. New York, New Haven & Hartford R. R. Headquarters, New Haven, Conn.

O. L. Eaton, superintendent, Baltimore and Ohio. Headquarters, Connellsville, Pa.

J. H. Ellis, acting general manager, Georgia R. R. Headquarters, Augusta, Ga.

W. H. Farrell, superintendent, Toronto terminals, Grand Trunk. Headquarters, Toronto, Ont.

John Flick, trainmaster, Third Division, New York, New Haven & Hartford. Headquarters, New Haven, Conn.

William H. Foster, superintendent, Shore Line Division, New York, New Haven & Hartford R. R. Headquarters, New Haven, Conn.

C. L. French, assistant general superintendent, Pittsburgh System, Baltimore and Ohio Railroad. Headquarters, Pittsburgh, Pa.

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George Geiger, assistant superintendent, Salt Lake Division, Southern Pacific. Headquarters, Sparks, Nev.

W. H. Given, assistant manager, Waterloo, Cedar Falls & Northern R. R. Headquarters, Waterloo, Iowa.

Operation.

E. P. Goodwin, superintendent of transportation, Chesapeake and Ohio. Headquarters, Richmond, Va.

James O. Halliday, assistant to general manager, New York, New Haven & Hartford. Headquarters, New Haven.

W. J. Helmick, superintendent, Gulf, Texas & Western Ry. Headquarters, Jermyn, Texas.

Otto Holstein, superintendent of transportation, Guayaquil & Quito. Headquarters, Huigra, Ecuador, South America.

J. E. Hood, superintendent of bridges and buildings, Northern Pacific. Headquarters, Duluth, Minn.

J. R. Hutchcock, superintendent, Los Angeles Division, Atchison, Topeka and Santa Fe. Headquarters, Los Angeles, Cal.

J. W. Knapp, superintendent, Newport News terminals, Chesapeake and Ohio. Headquarters, Newport News, Va.

A. D. Lightner, chief officer, operation and traffic, New Orleans, Texas and Mexico. Headquarters, New Orleans, La.

R. M. Johnson, superintendent, Eastern Division, Western Maryland. Headquarters, Baltimore, Md.

T. W. McGaw, superintendent, Savannah Terminal Division, Seaboard Air Line. Headquarters, Savannah, Ga.

W. P. Martin, trainmaster, Canadian Pacific Ry. Headquarters, Vancouver, B. C.

S. B. Moore, assistant superintendent, Globe Division, Arizona Eastern. Headquarters, Globe, Ariz.

Charles H. Motsett, superintendent, New York Division, New York, New Haven & Hartford. Headquarters, Harlem River, N. Y.

A. F. Moursund, assistant superintendent, Galveston, Harrisburg & San Antonio. Headquarters, San Antonio, Texas.

H. E. Myers, shop superintendent, Lehigh Valley. Headquarters, Packerton, Pa.

Harry C. Oviatt, superintendent, Old Colony Division, New York, New Haven & Hartford. Headquarters, Taunton, Mass.

E. J. Parrish, superintendent, New York, Chicago & St. Louis. Headquarters, Ft. Wayne, Ind.

Thomas H. Pindell, general superintendent, Chicago, Peoria & St. Louis. Headquarters, Springfield, Ill.

R. S. Richardson, assistant superintendent, Halifax and St. John District, Intercolonial Railway and Prince Edward Island Ry. Headquarters, Moncton, N. B.

F. F. Small, assistant chief dispatcher, Southern Pacific Railroad.

Donald F. Stevens, trainmaster, New York, New Haven & Hartford. Headquarters, Harlem River.

W. D. Stayton, assistant superintendent, Houston East and West Texas and the Houston & Shreveport. Headquarters, Houston, Texas.

M. C. Sullivan, assistant superintendent, Texas & New Orleans and assistant division superintendent, Galveston, Harrisburg & San Antonio. Headquarters, Houston, Texas.

H. M. Taylor, general manager, Brazil Railway. Headquarters, Sao Paulo, Brazil.

C. W. Van Horn, trainmaster, Chicago Division, Baltimore and Ohio R. R. Headquarters, Garrett, Ind.

F. Walker, car service agent, Canadian Pacific, Alberta Division. Headquarters, Calgary, Alta.

P. G. Walton, superintendent, Fort Street Union Depot Company. Headquarters, Detroit, Mich.

Otis Weeks, assistant superintendent, Salt Lake Division, Southern Pacific. Headquarters, Ogden, Utah.

J. P. Welch, trainmaster, Duluth & Iron Range. Headquarters, Two Harbors, Minn.

S. C. Wolfersberger, assistant superintendent, Baltimore & Ohio. Headquarters, Somerset.

Clayton N. Woodward, general superintendent in charge of Eastern Grand Division, New York, New Haven & Hartford. Headquarters, South Station, Boston, Mass.

Traffic.

A. J. Anderson, commercial freight agent, Baltimore and Ohio. Headquarters, Omaha, Neb.

S. K. Blair, general agent, New York, Chicago & St. Louis R. R. Headquarters, Fort Wayne, Ind.

V. A. Blewett, commercial agent, Rock Island Lines. Headquarters, Los Angeles, Cal.

Joseph S. Blocker, claim agent, St. Louis Division, Illinois Central. Headquarters, Carbondale.

S. C. Boylston, Jr., passenger agent, Seaboard Air Line. Headquarters, Jacksonville, Fla.

B. G. Brown, assistant general freight agent, Southern Railway. Headquarters, Atlanta, Ga.

L. M. Brown, assistant general passenger agent, Denver and Rio Grande R. R. Headquarters, Denver, Colo.

F. J. Burke, assistant general freight agent, Texas and Pacific Railway. Headquarters, Dallas, Texas.

Frank J. Butler, traveling freight agent, Union Pacific. Headquarters, St. Louis, Mo.

G. K. Caldwell, general freight agent, Southern Railway. Headquarters, Washington, D. C.

F. C. Campbell, traveling freight agent, Chicago, Great Western R. R. Headquarters, Buffalo, N. Y.

C. S. Cannon, traveling passenger agent, Seaboard Air Line. Headquarters, New York.

F. B. Choate, assistant general freight agent, Union Pacific. Headquarters, Denver, Colo.

J. P. Cummins, traveling freight agent, Northern Pacific. Headquarters, Casselton, N. D.

Samuel H. Dare, general Western freight agent, Atlantic Coast Lines. Headquarters, Chicago, Ill.

H. A. Davis, commercial agent, New York Central and Hudson River R. R. Headquarters, Boston, Mass.

Guy A. Deuel, division freight agent, International and Great Northern. Headquarters, Dallas, Texas.

L. B. Dickie, contracting freight agent, Kansas City, Mexico & Orient. Headquarters, Chicago, Ill.

M. J. Dooley, general agent, Sunset-Central

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Lines of the Southern Pacific. Headquarters, Shreveport, La.

F. C. Eslick, general agent, Chicago Great Western R. R. Headquarters, Mason City, Iowa.

Charles Elliott, general baggage agent, Western Maryland. Headquarters, Baltimore, Md.

E. A. Farr, traveling freight agent, Delaware, Lackawanna & Western. Headquarters, Detroit, Mich.

C. B. Fox, traveling freight agent, International and Great Northern. Headquarters, Ft. Worth, Texas.

W. F. Fuller, general agent, Tidewater Southern Railway. Headquarters, Modesto, Cal.

E. P. Gardiner, assistant general freight agent, Boston & Albany. Headquarters, South Station, Boston, Mass.

R. A. Garvin, passenger agent, Seaboard Air Line. Headquarters, Jacksonville, Fla.

C. E. Gay, traffic manager, Brinson Railway. Headquarters, Savannah, Ga.

H. R. Gray, traveling passenger agent, Seaboard Air Line. Headquarters, Atlanta, Ga.

W. B. Gresham, district passenger agent, Seaboard Air Line. Headquarters, Birmingham, Ala.

H. K. Hartman, commercial agent, Chicago, Great Western R. R. Headquarters, Detroit, Mich.

W. H. Hartsough, district passenger agent, Hocking Valley R. R. Headquarters, Columbus, Ohio.

P. M. Havens, soliciting freight agent, Cincinnati, Hamilton & Dayton. Headquarters, Indianapolis, Ind.

A. D. Heaphey, westbound contracting freight agent, the Wabash. Headquarters, Chicago.

L. M. Helm, general freight and passenger agent, Cincinnati, Georgetown & Portsmouth R. R., Felicity & Bethel R. R. and the Ohio River & Columbus Ry. Headquarters, Cincinnati, O.

F. B. Hillebrand, commercial agent, Lehigh Valley R. R. Headquarters, Detroit, Mich.

Eugene B. Hoskins, freight solicitor, Pennsylvania Railroad. Headquarters, Brooklyn, New York.

C. H. Jackson, general agent, Philadelphia & New Orleans Transportation Company. Headquarters, Pittsburgh, Pa.

Dan Jacobs, assistant general freight agent, St. Louis, Iron Mountain & Southern. Headquarters, Alexandria, La.

R. L. James, traveling passenger agent, Seaboard Air Line. Headquarters, Tampa, Fla.

E. G. Johnson, agent, Baltimore and Ohio Southwestern. Headquarters, Pana, Ill.

J. F. Jutz, traveling freight agent, Union Pacific System. Headquarters, Birmingham, Ala.

George C. Kelleher, assistant general passenger agent, New Orleans & Northeastern R. R., Alabama & Vicksburg Ry., and Vicksburg, Shreveport & Pacific Ry. Headquarters, New Orleans, La.

H. F. Kern, general agent, Southern Pacific. Headquarters, Denver, Colo.

A. Kneubuehl, traveling freight agent, Chicago Great Western Railroad. Headquarters, New York City.

C. W. Landon, agent, Baltimore and Ohio Southwestern R. R. Headquarters, North Bend, Ohio.

J. J. Lawrence, assistant general passenger agent, Trinity and Brazos Valley R. R.

R. H. Lewis, city passenger agent, Western Maryland. Headquarters, Baltimore, Md.

L. B. Limming, traveling freight agent, Baltimore and Ohio. Headquarters, Omaha.

E. H. List, traveling freight agent, Minneapolis & St. Louis. Headquarters, Chicago.

J. W. McBurney, traveling passenger agent, Union Pacific System. Headquarters, St. Louis, Mo.

L. E. Mann, passenger agent, Seaboard Air Line. Headquarters, Philadelphia.

J. B. Mixson, Jr., soliciting freight and passenger agent, Winston-Salem Southbound Railway. Headquarters, Winston-Salem, N. C.

Logan A. Mizener, traveling freight agent, Chicago, St. Paul, Minneapolis & Omaha Ry. Headquarters, St. Paul, Minn.

A. E. Morris, general agent, Alaska business, the Milwaukee System.

W. A. Morrow, district passenger agent, Missouri, Kansas & Texas R. R. Headquarters, Waco, Texas.

George C. Myrover, city ticket agent, Seaboard Air Line. Headquarters, Tampa, Fla.

H. R. Parker, special agent, Waterloo, Cedar Falls & Northern. Headquarters, Waterloo, Iowa.

William Peebles, freight solicitor, Pennsylvania Railroad. Headquarters, Baltimore, Md.

F. D. Powell, freight traffic department, Michigan Central Railroad. Headquarters, Chicago, Ill.

L. A. Rafert, general freight agent, Colorado Midland Ry.

E. C. Rankin, traveling freight agent, Southern Railway. Headquarters, Columbia, S. C.

D. L. Ray, division freight agent, International and Great Northern. Headquarters, El Paso, Texas.

Zack J. Reese, general baggage agent, Texas and Pacific. Headquarters, Dallas, Texas.

A. A. Robertson, commercial agent, Atchison, Topeka and Santa Fe Ry. Headquarters, Cincinnati, Ohio.

C. M. Rollings, traveling passenger agent, Union Pacific System. Headquarters, Birmingham, Ala.

N. W. Secor, commercial agent, Michigan Central R. R. Headquarters, Toledo, Ohio.

L. C. Shirah, commercial agent, Macon & Birmingham Ry. Headquarters, Atlanta, Ga.

Bode K. Smith, assistant general passenger agent, Western Pacific Ry. Headquarters, San Francisco, Cal.

Benj. J. Smith, station agent, Lehigh Valley R. R. Headquarters, Gorham, N. Y.

Fred W. Souerbry, supervisor of demurrage and weighing, Illinois Central and the Yazoo and Mississippi Valley. Headquarters, Chicago, Ill.

C. F. Stewart, general passenger agent, Western Maryland. Headquarters, Baltimore, Md.

G. A. Stokes, division agent, Grand Trunk. Headquarters, Toronto, Ont.

F. J. Sullivan, traffic manager and superintendent, Nevada Copper Belt. Headquarters, Mason, Nev.

J. F. Thompson, general agent, freight department, Santa Fe Railway. Headquarters, Chicago, Ill.

W. H. Underwood, assistant to the passenger traffic manager, New York Central Lines, West. Headquarters, Chicago, Ill.

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A. B. Waldron, commercial agent, International and Great Northern. Headquarters, Paris, Texas.

F. Walker, car service agent, Alberta Division, Canadian Pacific Ry. Headquarters, Calgary, Alta.

R. Weir, contracting agent, Delaware, Lackawanna & Western R. R. Headquarters, Detroit, Mich.

Maurice A. Welch, chief special agent, Waterloo, Cedar Falls & Northern. Headquarters, Waterloo, Iowa.

John T. West, division passenger agent, Seaboard Air Line. Headquarters, Raleigh, N. C.

C. E. Wharton, contracting freight agent, Illinois Central R. R. Headquarters, San Francisco, Cal.

C. C. Womble, soliciting freight agent, Gulf, Colorado & Santa Fe. Headquarters, Waco, Texas.

Purchasing.

J. L. Bennett, purchasing agent, Central of Georgia. Headquarters, Savannah, Ga.

D. D. Cain, general storekeeper, Seaboard Air Line. Headquarters, Portsmouth, Va.

D. Downing, general storekeeper, Chicago & Alton. Headquarters, Bloomington, Ill.

R. A. Klock, general tie and timber agent, Intercolonial and Prince Edward Island railways. Headquarters, Moncton, N. B.

George E. McWhite, assistant purchasing agent, Atlanta, Birmingham & Atlantic. Headquarters, Atlanta, Ga.

A. C. Mann, purchasing agent, Illinois Central. Headquarters, Chicago, Ill.

A. C. Mass, purchasing agent, Illinois Central R. R.

W. M. Portlock, assistant to the general purchasing agent, Seaboard Air Line Ry. Headquarters, Portsmouth, Va.

William D. Stokes, general storekeeper, Central of Georgia. Headquarters, Savannah, Ga.

Miscellaneous.

J. E. Taussig, special representative, Texas & Pacific. Headquarters, New Orleans, La.

Safety.

George Bradshaw, safety engineer, Grand Trunk Railway.

RESIGNATIONS.

Executive.

Fred C. MacMillan, vice-president, St. Paul & Kansas City Short Line Railroad.

Sidney W. Winslow, director, New Haven Railroad.

George A. Ynille, president, Memphis and Pensacola Railroad.

Financial.

Joseph Hallen, assistant secretary, Southern Pacific and the Louisiana Western.

Accounting.

P. H. Woodson, chief clerk, statistical department, International and Great Northern Railway.

Engineering and Mechanical.

W. S. Clarkson, master mechanic, Shore Line Division, New York, New Haven & Hartford Railroad.

F. C. Cleaver, superintendent of motive power, Rutland Railroad.

John M. Dougherty, foreman boilermaker, Pennsylvania Railroad.

I. S. Downing, master car builder, Lake Shore and Michigan Southern.

Charles M. Fritsch, superintendent of motive power, Western Maryland.

J. B. Kilpatrick, mechanical superintendent, First District, Chicago, Rock Isalnd & Pacific Railway.

J. G. Neuffer, superintendent of motive power, Chicago Great Western.

R. W. Schulze, acting general car foreman, Gulf, Colorado & Santa Fe Railway.

F. C. Stuart, signal engineer, Sunset-Central Lines, of the Southern Pacific Co.

F. J. Walsh, master mechanic, Hinton Division, Chesapeake and Ohio Railroad.

Operation.

H. H. Berry, superintendent, Middle Division, Western Maryland R. R.

George R. Chambers, chief clerk to superintendent, Western Maryland.

W. J. Frauendiner, superintendent of shops, Lake Shore & Michigan Southern.

W. C. Hurst, general superintendent, Chicago, Peoria & St. Louis Railroad.

J. C. McVea, assistant superintendent, Houston, East and West Texas Railway and the Houston & Shreveport, R. R.

T. F. Sharp, assistant superintendent, Galveston, Harrisburg & San Antonio Railroad.

P. G. Walton, assistant superintendent, St. Louis, Brownville & Mexico R. R.

Traffic.

R. J. Anderson, assistant general passenger agent, New Orleans and Northeastern Railroad, Alabama & Vicksburg Ry., and the Vicksburg, Shreveport & Pacific Ry.

D. B. Barclay, soliciting freight agent, Cincinnati, Hamilton and Dayton.

J. L. Blair, traveling freight agent, Atchison, Topeka and Santa Fe Railroad.

L. W. Buckmaster, district passenger agent, Hocking Valley Railway.

A. W. Cheesman, division freight and passenger agent, Southern Pacific.

B. F. Coons, commercial agent, Rock Island Lines.

J. H. Cosgrove, contracting freight agent, Illinois Central Railroad.

H. N. Drummond, traveling freight agent, Chicago, St. Paul, Minneapolis & Omaha Railway.

Page Harris, superintendent of transportation, Texas and Pacific Railroad.

F. H. Howell, general passenger agent, Western Maryland R. R.

A. C. Izard, freight soliciting agent, Southern Pacific Railway.

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H. T. Jenney, commercial agent, Lehigh Valley Railroad.
H. S. Leard, division passenger agent, Seaboard Air Line Railway.
T. M. Smith, commercial agent, Chicago, Great Western Railroad.
S. J. Tucker, assistant general passenger agent, Trinity and Brazos Valley Railway.

Industrial.

H. P. Attwater, industrial agent, Sunset-Central Lines of the Southern Pacific.

Purchasing.

C. B. Foster, general storekeeper, Chicago & Alton Railroad.
W. A. Hammel, purchasing agent, Atlanta, Birmingham & Atlantic R. R.
John C. Kuhns, purchasing agent, Illinois Central Railroad.
H. C. Macklin, assistant to general purchasing agent, Seaboard Air Line Railroad.

OBITUARY.

William Beal Clagett, for twenty-nine years an auditor and ticket agent at the Union depot in Kansas City, and widely known among railroad men of the West, died, aged 50 years. He was the originator of the stub method of selling railroad tickets, which has been adopted all over the country.

John S. Cook, master mechanic of the Georgia Railroad, at Augusta, Ga., died on August 28th, in Johns Hopkins Hospital, Baltimore, Md. Mr. Cook had been in railroad service sixty-four years. He was born on October 5, 1827, at Brooklyn, N. Y., and began railway work in April, 1849, as machinist in the shops of the Central Railroad at Savannah, Ga. Later he was machinist in the shops of the Georgia Railroad at Augusta. From 1850 to 1853 he was a locomotive engineer on that road; then from 1854 to 1878, about twenty-five years, he was foreman of shops. On the election of General E. P. Alexander to the presidency of the Georgia Railroad, in May, 1878, he was made master mechanic, and had held that position ever since.

John J. Coughlin, of Las Vegas, Nev., roadmaster of the Las Vegas & Tonopah, was run over by a passenger train and killed on August 7th. It appears that he had fallen from his motor car. He was lying on the track, and, as the train approached, was seen by the engineman and the fireman, but there was not space in which to bring the train to a stop. Mr. Coughlin was inspecting the track from Goldfield to Bonne Clare. It is supposed that he had fainted because of the heat. The motor car, uncontrolled, ran 21 miles down grade and collided with a hand car.

J. A. Courtright, formerly trainmaster of the Michigan Division of the Cleveland, Cincinnati, Chicago & St. Louis Ry., died at his home in Wabash, Ind., August 17th.

George W. Crary, treasurer of the New Orleans, Mobile & Chicago, at Mobile, Ala., died in that city recently. Mr. Crary was born in Cincinnati, Ohio. He was secretary and treasurer of the Mobile, Jackson & Kansas City, and when that company was reorganized under the name of the New Orleans, Mobile & Chicago, in 1909, he retained the same position, but since January, 1912, he has been treasurer only.

H. Daniels, chairman of the Board of Engineers of the United States Steel corporation, chief engineer of the American Steel and Wire Company, and president of the Washburn & Moen Co., died at his home after an illness of about a year.

J. J. Driscoll, trainmaster of the Baltimore & Ohio R. R., at Butler, Pa., died recently.

George M. Fraser, traffic manager and superintendent of the Nevada Copper Belt R. R., at Mason, Nev., died August 29th.

Edward A. Haskell, until recently division engineer of the Boston & Albany R. R., at Boston, Mass., died August 24th, aged 49 years.

John W. Holliday, superintendent of the New England railway mail service, died in Boston, August 24th, aged 62 years.

George M. Hughes, president and general manager of the New Jersey, Indiana & Illinois R. R., with office at New York, died at his home in Brooklyn, September 6th. Mr. Hughes was born at Southfields, N. Y., June 19, 1843. His first railway position was that of clerk in the auditor's office of the Erie R. R., with which company he remained serving in various capacities from November, 1803, to March, 1884. He was later connected with the Chicago, Milwaukee & St. Paul Ry., New York, Susquehanna & Western R. R., and Central of Georgia Ry. After holding office with various steamship lines, in October, 1903, he became secretary and general manager of the New Jersey, Indiana & Illinois and since October, 1905, has been president of the same road.

George L. Irwin, formerly division superintendent of the Chicago & Northwestern Ry., died at his home in Chicago, August 22nd, aged 82 years.

Joseph D. McCarrick, division freight agent of the Southern Ry., at Norfolk, Va., died in New York City, September 10th. Mr. McCarrick was about 40 years of age and had been with the Southern Ry. for 18 years.

C. M. Taylor, mechanical superintendent of the Second District of the Chicago, Rock Island & Pacific Ry., at Topeka, Kan., died on September 3rd, at Colorado Springs, Colo., aged 51 years. He had been granted leave of absence in July on account of illness. Mr. Taylor had been with the Rock Island since December, 1906, having previously been mechanical superintendent of the Western Grand Division of the Atchison, Topeka & Santa Fe Ry., with headquarters at La Junta, Colo.

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DIVIDEND NOTICE

OFFICE OF THE UNITED GAS IMPROVEMENT COMPANY, N. W. Corner Broad and Arch Streets.

Philadelphia, Sept. 10, 1913.

The Directors have this day declared a quarterly dividend of two per cent. ($1.00 per share), payable October 15, 1913, to stockholders of record at the close of business, September 30, 1913. Checks will be mailed.

LEWIS LILLIE, Treasurer.

DIVIDEND NOTICE.

UNITED STATES RUBBER COMPANY.

1790 Broadway, New York, October 2, 1913.

The Board of Directors of the United States Rubber Company has this day declared from its net profits a quarterly dividend of Two Per Cent (2%) on the First Preferred Stock, a quarterly dividend of One and one-half per cent (1½%) on the Second Preferred Stock, and a quarterly dividend of One and one-half per cent (1½%) on the Common Stock of the Company, to Stockholders of record at 3 P. M. on Wednesday, October 15th, 1913, payable, without closing of the Transfer Books, October 31st, 1913.

W. G. PARSONS, Treasurer.

The Edgell Company

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Statement for October, 1913, of the ownership, management, etc., of the "Railway World," published monthly at Philadelphia, Pa., required by the Act of August 24, 1913.

Editor, Edward G. Ward, Philadelphia, Pa
Publisher, "Railway World," Philadelphia, Pa.

Stockholders:

E. Gaskin,	Buffalo, N. Y.
M. A. Ward,	Brooklyn, N. Y.
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Garrison M. King,	New York City.
B. C. Tucker,	Cleveland, Ohio.
C C. McCain,	New York City.
C. S. McCain,	Maplewood, N. J.
W. J. Conners,	Buffalo, N. Y.
Harry Howarth,	Trenton, N. J.
Frank F. Henry,	Buffalo, N. Y.
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R. W. Baxter,	Seattle, Wash.
C. M. Heald,	Buffalo, N. Y.
E. T. Douglass,	Philadelphia.

(Signed) E. G. WARD.
Editor.

Sworn to and subscribed before me this 17th day of October, 1913.

(Signed) WALTER M. BARBER,
Notary Public.

(My commission expires February 21, 1915.)

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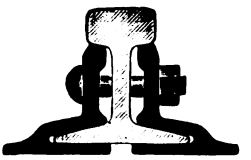

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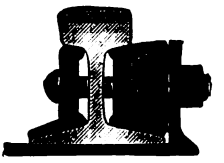

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Pennsylvania Station	2.45 P. M.
Hudson Terminal -	2.45 P. M.
Lv. North Philadelphia - -	4.31 P. M.
Lv. Washington - - - -	3.10 P. M.
Lv. Baltimore - - - - -	4.20 P. M.
Ar. Chicago - - - -	9.45 A. M.

	DAILY
Lv. Chicago - - - - -	12.40 P. M.
Ar. Baltimore - - - -	9.15 A. M.
Ar. Washington - - - -	10 25 A. M.
Ar. North Philadelphia - -	7.54 A. M.
Ar. New York	
Hudson Terminal -	9.40 A. M.
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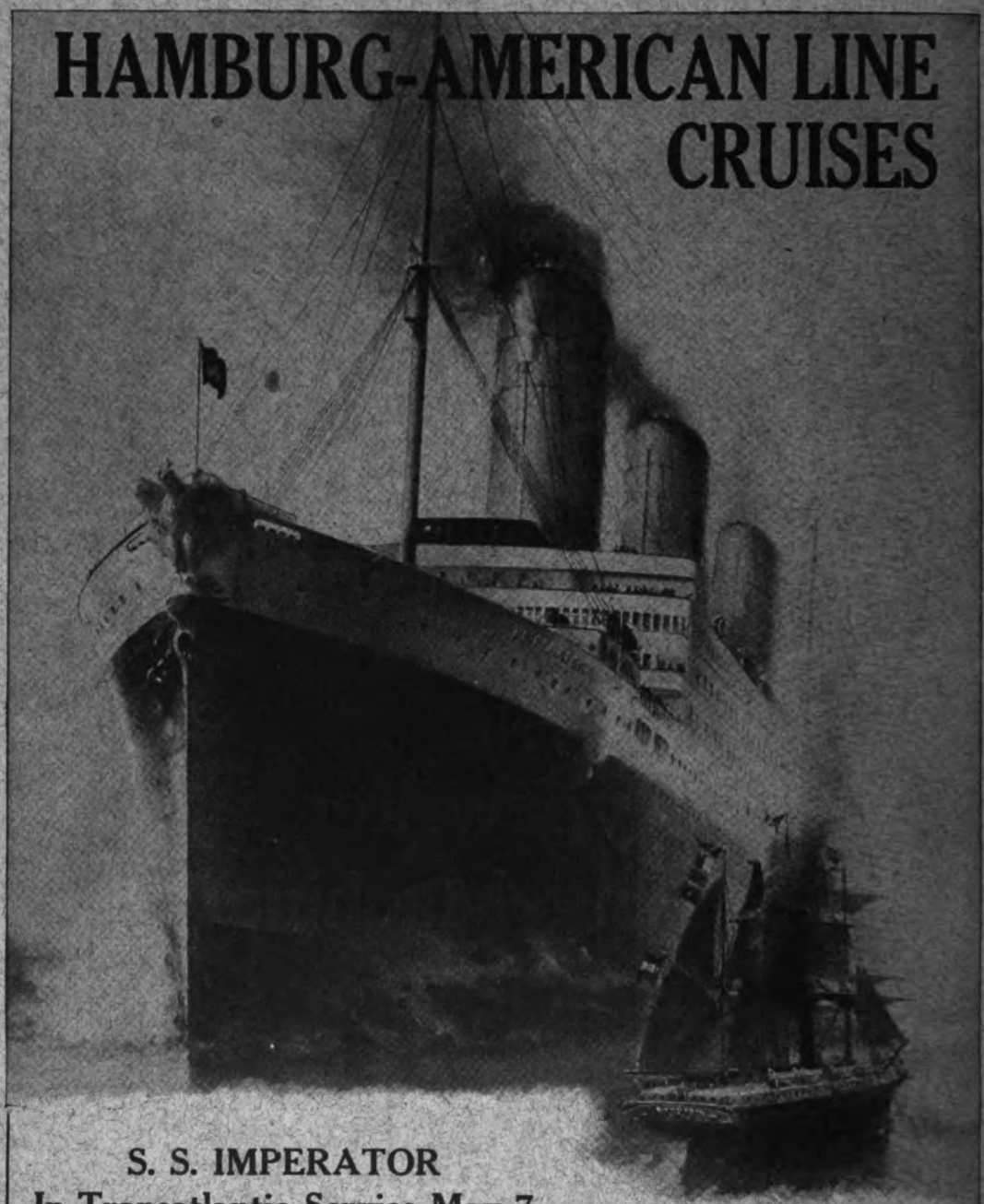

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VOLUME LVII ESTABLISHED 1856 NUMBER 11

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Railway World

VOL. LVII. NOVEMBER, 1913 No. 11

Important Developments in the Transportation Field

OUTLOOK FOR HIGHER RATES ENCOURAGING

The Eastern railroads finished in October, the filing with the Interstate Commerce Commission, of their freight tariffs containing a five per cent increase in the present rates on traffic transported between points north of the Ohio and Potomac rivers and east of the Mississippi River. As anticipated, the Commission suspended these rates until March 12th, of next year, in order to investigate the necessity for the increases named. Hearings will begin on November 24th, and continue as long thereafter as necessary to put the Commission in possession of all the facts of the case.

Certain developments recently appear to make almost inevitable the granting of the carriers' requests. High operating expenses, the added burdens involved in the recent decision of the Arbitration Board in the Eastern Trainmen's Wage Controversy, and a decided shrinkage in net earnings, not to mention a more recent similar tendency in gross, all combine to show that the railroads are facing a crisis in their development, unless relief is granted by which they can replenish their depleted coffers.

Many trade organizations and individual shippers throughout the country are coming out strongly in support of the rate increase, as it becomes more fully apparent that transportation facilities must soon fail to fully meet the requirements of commerce unless some measure of relief is granted by regulative authorities. For example, resolutions have been filed with the Commission by the Chicago Association of Commerce, one of the most important organizations of shippers in the United States, giving notice that the Association will not oppose the petition of the Eastern roads for a general advance of five per cent in their freight rates. In the East the executive committee of the New York Board of Trade and Transportation, in a report submitted at its regular November meeting, while declaring that the five per cent increase in freight rates should be tested on the principle of efficiency and management, also asserts that the railroads should be liberally dealt with, because upon their efficiency and ability to meet the demands of constantly growing business, depend the development and progress of the country. Other prominent organizations have taken an even more emphatic stand in favor of the increase.

Another encouraging development was the statement made by Chairman Clark, of the Interstate Commerce Commission, at the recent annual convention of the National Association of Railway Commissioners, to the effect that an ideal transportation situation could be attained only by large additions to the facilities and great improvement in methods and that the added facilities could be secured only through expenditures from surplus earnings or from expansion of credit. Chairman Clark affirmed that in either case the total cost to the purchaser of transportation would be increased. Railway executives find much encouragement in this statement, and taken in connection with other recent developments, believe that they can

CHAIRMAN E. E. CLARK,

of the Interstate Commerce Commission, whose recent address before the National Association of Railway Commissioners, while in no sense supporting a rate advance, is thought to be of an encouraging character by many railway officials.

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convince the Commission of the imperative necessity for the rate advances.

Not only are many commercial organizations and shippers supporting the railways' request for an increase in rates, but leading economists who have given this question careful consideration, are advocating the immediate necessity for granting some measure of relief. In a recent address Professor William Z. Ripley, of Harvard University, declared that instead of unexampled prosperity of a few years ago, the railroads are now facing a period of great financial depression. He asserted that the carriers now seem to be more or less at the mercy of circumstances and that organized labor under threat of general strikes, has forced substantial concessions both in wages and conditions. He pointed out that while the carriers have acquiesced manfully in the mandates of the people, that they shall be subject to public control, they now find themselves by the pressure of increasing cost of operation and of even greater demands from the public for more and better service practically compelled to throw themselves upon the mercy of the Interstate Commerce Commission for relief. To quote from the address:

This relief is demanded, not alone in the interest of investors, but in order that much-needed improvements and extensions commensurate with the developemnt of the country may be made. It is a self-evident proposition that unless the railroads are prosperous and protected in the exercise of their property rights, a healthy growth of transportation facilities cannot be had. Adequate service and the convenience of the public require that the present plight of the railways should receive the most earnest consideration. Under ordinary circumstances relief might be had from three directions: greater economy and efficiency; a substantial growth of traffic, or an increase of rates.

Economy and greater efficiency of operations, as a remedy for deficiency of revenue, played a part in the rate advance cases of 1910. But it is clear that railroads, as a field for the introduction of scientific management methods, are considerably handicapped. Rigid rules of the railroad brotherhoods are difficult to overcome. The wide geographical extension of operations renders detailed superintendence impossible. And the steadily increasing demands of the public for more and better service, regardless of cost, hinder the introduction of many plans for more scientific operation. On the whole, American railroads are operated at the high level of efficiency. Certain economies ought, nevertheless, to be effected. Among these should be a careful revision of purchasing department methods. Laxity and private profit ought to be rigorously excluded.

Increase in tonnage, as a remedy for the existing distress, promises less relief than might have been expected five years ago. This follows naturally from the rise of operating costs already mentioned. But it is also established by the clear demonstration that after certain point of traffic congestion has been reached, immediate, general and extraordinary outlay of capital is necessary in order to handle further increments of tonnage. Unless earnings, therefore, are sufficently ample to permit of large annual improvements out of income, the demand for new capital seems bound to outrun the earning power.

PROFESSOR W. Z. RIPLEY,

of Harvard University, who believes that relief in a large way for the present crisis in railway development can be afforded only by the sanction by the Government of a general increase of rates chargeable for service.

It is apparent from the foregoing statements that relief can be afforded for the present crisis in a large way only by the sanction by the government of a general increase of rates chargeable for service. Experience of the last ten years emphasizes the point that such relief can scarcely be afforded piecemeal. The growing unity of interest of all carriers arises not only out of the close interrelation of rates all over the country under the stress of commercial competition but also because of the practical standardization of the largest item in railway expenses, namely, the outgo for wages under pressure from the railroad brotherhoods. It would appear, therefore, that in place of attempts, road by road, to raise rates on individual commodities, what is needed is the formulation of a carefully prepared plan of more general revision. A substantial increase of revenue by means of higher freight rates seems, then, inevitable.

The railways deserve protection, finally, against further continuance of special in-expert legislation by the several states. With powerful railroad commissions, now established by law in most of the commonwealths, the legislatures ought to refer all such matters of regulation and service to such boards. The enactment of drastic and inflexible full-crew and hours of service laws may work great hardship in the future. All such matters should be referred to administrative boards, which may apply the law with due regard to public needs and the circumstances of the case.

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THE AWARD IN THE EASTERN TRAINMEN'S WAGE CONTROVERSY

Labor has again won a decisive victory over the railways. The Board of Arbitration appointed to settle this controversy has seen fit to authorize an increase of approximately 7 per cent in the wages of 80,000 trainmen and 20,000 conductors. This means an additional annual expenditure for railways in the Eastern territory of $6,000,000. While the increase demanded by the men was approximately 20 per cent, what was actually granted probably came up to their full expectations under the circumstances.

The award was concurred in by the neutral members of the Board who were Seth Low, president of the National Civic Federation, and John H. Finley, president of College of the City of New York; and also by the labor representatives who were L. E. Sheppard, representing the Order of Railway Conductors, and D. L. Cease, representing the Brotherhood of Railway Trainmen. Dissenting opinions were rendered by W. W. Atterbury, vice-president of the Pennsylvania Railroad, and A. H. Smith, vice-president of the New York Central Lines, who represented the railroads on the Board. Messrs. Sheppard and Cease also filed a minority report because of the failure of the Board to standardize the Eastern wages in accordance with those of the West. The increase granted is to date from October 1, 1913, and to remain in effect one year. Among its general recommendations the Board urges an independent wage inquiry to embrace the rates of pay on all American railroads with the view of establishing a scientific basis for the payment of all classes of railroad employes.

In reaching its award the Board ruled mainly against the employes on four out of five points submitted as reasons why the increase should be granted and found for them on the fifth, the increased cost of living. Since 1909, when last an increase was granted, the arbitrators found the cost of living had increased 7 per cent. Certain minor contentions embraced also were conceded to the employes. It was, therefore, more than a coincidence that the increase granted in wages is exactly the increase in the cost of living, as outlined by documents introduced by the employes.

"The Board does not found its action entirely upon the increased cost of living," reads the award, a document of 75 printed pages, "though it looks upon this as a basic." Without attempting to standardize the rates of pay between railroad employes of the East and the West, the Board asserts its belief that it is desirable, but not possible at the present time. As to this, the award voices the opinion that Congress should make an inquiry as to whether there is any longer a substantial reason for the maintenance of a wage differential between the two sections.

The articles are dealt with separately and fix the pay for various classifications of labor. While technical in verbiage, they provide chiefly that the monthly pay of employes in the passenger branch of the service shall be:

Conductors, $135; baggagemen, $82.50; flagmen and rear brakemen, $78; brakemen, $76.50. Overtime, per hour, conductors, 45 cents; assistant conductors and ticket collectors, 35.7 cents; baggagemen, 27.5 cents; flagmen and rear brakemen, 26 cents; brakemen, 25.5 cents.

For the freight service, the chief awards are:

Through runs, conductors, 4 cents a mile; flagmen, 2.67 a mile; brakemen, 2.67 a mile; any run less than 100 miles to be paid for as if it were 100 miles. In way freight, pick up or drop, mine and roustabout service, same minimum, conductors are awarded $4.50 a day of 100 miles or less, 10 hours or less; flagmen, $3.10, and brakemen, $3; overtime to be paid for as time and one half.

This was one of few instances in which the employes triumphed in their demand that overtime be paid for at one and one half the regular rate. The award is distinctly against such practice in most instances. To this finding the employes' representatives filed a minority report of protest. To the entire finding the railroads' representatives dissented.

> We dissent from this award because standardization is chimerical and uneconomic; because such increased cost of living as has occurred is not sufficient to justify the increase granted; because statistics prove that risk has decreased and hours of labor have decreased and the weight of evidence is that labor has not increased.

Of vital importance to the employes is the finding that present schedules of pay are not to be changed or disturbed in any way where they exceed the amounts named, nor are employes to be curtailed either in mileage or hours of labor to offset the increase granted.

The railroads' contention that they are be-

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tween two horns of a dilemma from which there is no apparent escape—that they must either raise rates or cease raising wages—is dismissed by the arbitrators with this assertion:

> This Board believes it must make its findings without any reference to the dilemma in which the railroads are evidently placed. The Interstate Commerce Commission and not this arbitration board has the duty of determining whether the railroads can earn in addition to their other charges, without an increase in rates, the rates of pay that this Board believes at the present time to be due to the conductors and trainmen.

However, the Board calls the attention of the Interstate Commerce Commission to the decrease of hazard that follows the installation of steel cars, double tracking and improved signals. On this point the award says:

> All of these things cost in the aggregate an immense sum of money. Any policy that would make it impossible for the railroads to command this money would be a profound misfortune to the whole nation. Such a policy would be bad enough in its effect upon transportation, because it would reduce the efficiency of the railroads; but it would be criminal in the sense that it would make the great army of railroad employes, who are numbered by hundreds of thousands, follow their hazardous occupation under conditions more hazardous than are necessary, and, indeed, more hazardous than are justifiable in a country like this.
>
> The increasing safety of passengers is equally involved. No American reads the records of railroad accidents in the United States without feeling a sense of reproach. This Board wishes to call the attention of the country to its belief that railroad accidents can be reduced almost precisely in proportion to the modernizing of the railroads and the improvement in their equipment.

It is difficult to understand how the Board of Arbitration justified its award on practically the sole basis of an increase in living expenses on the part of the men. While no one denies the fundamental justice of such an award, could it be applied to the whole people of the Nation, its application to a certain class works a grave injustice to the less fortunate other classes.

Why should provision be made to keep the wages of railway labor on a parity with the increased cost of living, because with their strength as a labor organization, they threaten to tie up the commerce of the country, when other classes receive no such protection, and why should these other classes be compelled to keep railway wages on such a parity by digging down in their pockets for the additional money? This, in the last analysis, is what must happen. Either those who have capital invested in railway property must pay for the advances thus doled out, or else those who employ the railways for transportation purposes must foot the bill. In either or both cases, one class is being arbitrarily protected at the expense of other classes.

As the matter apparently stands to-day, railway labor, which forms only a comparatively small part of the public, is given every possible consideration in the matter of increased wages, shorter hours and general conditions, while on the other hand, the stockholders who really form a large intrical part of the masses are receiving scant consideration on the part of the various legislative and regulative bodies. Perhaps there is one gleam of hope for railway managers in the prevailing opinion of the Board that the present wage movement by the trainmen and conductors in Eastern territory, "is the close of an old cycle of wage advance movements and not the beginning of a new one." This would at least indicate that future efforts along these lines are not likely to prove as successful as in the past.

Another remarkable point in the decision, is the manner in which the Board disposes of the railroads' contention that their earnings under present conditions do not justify them in granting any wage increases at the present time, and that there is no possibility that such earnings would justify it without a substantial increase in freight rates.

In considering this point, as heretofore noted, the Board holds that it must make its findings without any reference to the dilemma in which the railroads are evidently placed and that the Interstate Commerce Commission and not the Arbitration Board, has the duty of determining whether the railroads can earn in addition to their other charges, without an increase in rates, the rates of pay that the Board believes at the present time to be due to the conductors and trainmen. In other words, the Board decides to increase the wages of the trainmen irrespective of the ability of the roads to meet such increase. If the principle herein laid down should be applied to business generally, it would not be hard to foretell the disastrous results which would follow.

Of course in the case of the railroads, the Board considers the Interstate Commerce Commission as a safety valve, but whether an adequate rate advance will be permitted or at what time it will be granted, are ques-

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tions of the future, and in the meantime, the carriers must shift for themselves in the best way possible. Should some of them be forced to the wall, the Arbitration Board, according to its findings, should receive no censure, because other regulative authorities have failed to properly sense the situation. Truly the paths of the railroads are not strewn with roses.

It is estimated by Vice-President Atterbury and Vice-President Smith, who filed the dissenting opinion, that the award will consume the interest on $120,000,000 which is needed for increasing efficiency, safety and equipment, and that serious consequences are apt to result from the decision. It is also asserted that the award further widens the disparity between the trainmen's wages and those in other lines, by adding to wages already unduly high, and thus making equitable treatment of all employes difficult if not impossible. The dissenting brief reads as follows:

Whatever merit the award may find with the contending parties or the public, there can be no doubt it is the result of the conscientious, fair-minded and exhaustive effort on the part of the members of this Board. It is with great regret that we feel constrained to separately express our views, because of the serious consequences which we feel are apt to result from its decision.

The men asked for the Western rates of pay: (1) In the name of standardization. (2) On account of the increased cost of living. (3) On account of the increased productivity of a train crew. (4) On account of the increased risk, labor and responsibility. (5) On the ground that the profits made by the railroads in recent years have increased out of proportion to wages.

The Board has awarded approximately a seven per cent increase, amounting to nearly $6,000,000.

(1) It states "that it cannot be controlled in its findings by the argument for standardization, although it may be influenced by it."

(2) It finds that "there has been a substantial increase in the cost of living since adjustment of 1910," but says "the Board does not found its action entirely on the increased cost of living, though it looks upon this as basic."

(3)-a It states that "all the statistics available indicate that the risk to trainmen in later years is decreasing rather than increasing."

b It states that "it is not convinced that the labor in handling the trains of to-day is any greater now than in 1910 when the last adjustment was made."

c It "believes that there has been a certain increase in responsibility," but "it is impossible to state quantitatively how great this increase of responsibility is as compared with the responsibility conductors and trainmen had to bear in 1910, at the time of the last settlement."

(4) It finds "that the extra productivity of the train crew comes from the increased number of engines" and "not from any contribution of extra productivity by the train crew itself."

(5) It "finds itself unable to relate the facts in this class of exhibits (i. e., the exhibits of the employes as to profits and wages) to the question of wages in such a way as to found thereupon specific increases in rates of pay."

Without correlating the above with "other elements" mentioned, all of which the Board states are "impossible to quantitatively measure" it believes that taken together they justify an increase in wages in the total of seven per cent.

We dissent from this award:

First. Because "standardization" is chimerical and uneconomic.

Second. Such increased cost of living as has occurred is not sufficient to justify the increase granted.

Third. Statistics prove that "risks" have decreased; prove that "hours of labor" have decreased; the weight of evidence is that "labor" has not increased; and we cannot agree that it has been proven that anything so intangible as "responsibility" has been increased.

Fourth. The conductors and trainmen are but one of the many factors in efficient railroad operation, and are no more responsible for increased productivity than any other class of railway labor.

The seven per cent additional wages granted by this award, which will cost the railroads $6,000,000 a year, is in addition to the $4,000,000 recently added to railway expenses through extra crew laws passed in this "territory at the behest of these labor organizations. Thus a total of $10,000,000 annually is added to the pay of trainmen without additional service being received by the railroads or the public.

The annual burden of $6,000,000, which the award imposes, as well as the additional $4,000,000 must necessarily precede all fixed charges. The sum of $6,000,000 represents the annual interest at five per cent upon $120,000,000 capital and this annual burden is thrust upon the railroad companies at a time when the public should have increased and improved facilities and when the difficulties of raising new capital are daily increasing.

We believe that every class of employes should be properly and equitably treated. This award further dividing the disparity between trainmen's wages and those in other lines, adding to wages already unduly high, makes equitable treatment of all employes difficult if not impossible.

We hope that the Board's conclusion that their action may result in a greater contentment and a greater stability of rates of wages within the Eastern and Southeastern territories will be realized, but we feel the result of this arbitration cannot but further encourage that continual round of wage demands upon the railroads which regularly involve strike votes, public anxiety, mediation, arbitration and compromise. It has been an endless chain process, one section of the country being exploited by means of another; railway employes previously satisfied have been stirred into restlessness by other classes of labor receiving unjustified wage increases.

We are in accord with the Board's opinion that some competent governmental body should make a study of the proper economic basis for the fixing of wages.

It is most unfortunate that the railroads should be compelled to divert further sums from the essential investments—improved signals, elimination of grade crossings, heavier track and bridge structures, steel cars and other improvements absolutely necessary to the highest state of safe opera-

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tion and to greater safety of the public and the employes themselves.

We had hoped that this arbitration would bring the wage problem more nearly to a solution, but we cannot subscribe to the reasons advanced for the conclusions reached, and, therefore, we feel constrained to dissent therefrom.

THE SITUATION IN THE WEST

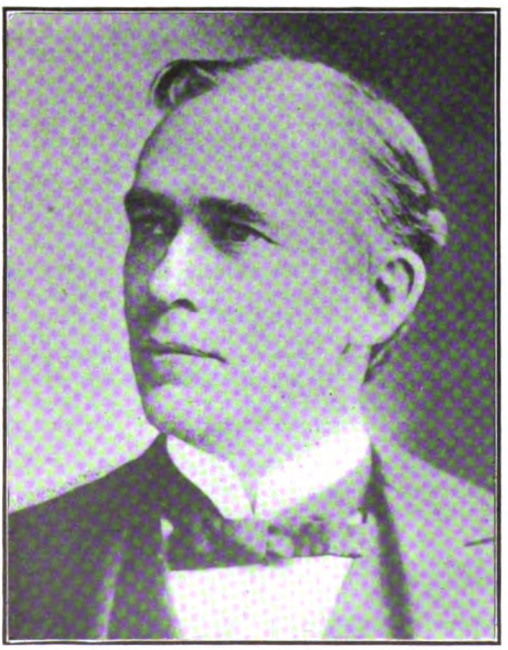
Now that the Eastern trainmen's wage controversy has been settled, attention is centered on conditions in the West. Forty thousand locomotive engineers and firemen employed by the railroads operating between Chicago and the Pacific Coast have notified officials of these lines of their desire to terminate the present labor agreement and they demand a wage increase which, in the aggregate, would amount to many millions of dollars.

The railroads in turn have notified Warren S. Stone, grand chief engineer of the Brotherhood of Locomotive Engineers, and W. S. Carter, grand chief of the Brotherhood of Locomotive Firemen and Enginemen, that they are also dissatisfied with existing contracts and will welcome a readjustment of wage schedules and working conditions. Railway managers feel that when negotiations are begun they will be in a position to show that a substantial number of decreases should be put into effect, rather than the increases for which the men are contending.

One of the most important demands of the engineers and firemen is for a joint contract with the roads. Each has had a separate agreement with the railways for many years and the joint contract plan is regarded as a distinct step along the lines of the federation scheme which has been agitated for a number of years among railway employes. The entire matter is likely to be submitted to a Board of Arbitration.

There has been no indication given by the Order of Railway Conductors and the Brotherhood of Railway Trainmen of the Western roads, that they have any immediate intention of attempting to force an increase in wages. At their recent meeting, held in Chicago, the matter of increased pay was not taken up, and only questions of an entirely different character were discussed. In fact there appears no intention of these organizations to agitate this question in the near future.

The arbitration of the controversy between the Chicago, Burlington and Quincy and its trainmen, is proceeding in an orderly manner. Henry S. Boutell, former Congressman from Illinois, has been elected chairman of the Board, and H. S. Milsted, of Washington, has been chosen secretary. The men have submitted thirty-nine questions for arbitration.



HONORABLE CHARLES A. PROUTY,

who has resigned from the Interstate Commerce Commission to personally direct the work of procuring the physical valuation of American railways.

PHYSICAL VALUATION

The big development in physical valuation activities during the month has been the announcement of the retirement of Charles A. Prouty as a member of the Interstate Commerce Commission in order that he may give his exclusive attention to the direction of this work. While the whole physical valuation plan has made a tremendous gain by this appointment, the Interstate Commerce Commission has lost one of its ablest members and the railroads can only hope that as strong and just a man will be appointed in his place.

Mr. Prouty, in his seventeen years of service with the Interstate Commerce Commission, has become known as one of its ablest and hardest working officials. Mr. Prouty is a Republican. That a Democratic Chief Executive should vigorously urge him to remain on the Commission in spite of his desire to resign, constitutes a remarkable tribute to his integrity and ability and a

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willingness on the part of President Wilson to rise above party lines for the welfare of the country.

In discussing physical valuation in a recent article appearing in the *Columbia Law Review,* Royal E. T. Riggs, of the New York Bar, asserts that no more gigantic task has ever been imposed upon an administrative body than that imposed upon the Interstate Commerce Commission. He said in part:

Valuation cannot be completed too soon for the investing public, nor Congress act too speedily to confer all jurisdiction over the railroads upon the Commission. Millions of ordinary business men in this country would be appalled to be subjected to the control of not one but many governmental agencies—such as the Northern Pacific Railroad, subject to rate regulation by the Minnesota, North Dakota, Wisconsin, Montana, Washington and Oregon railroad commissions as well as the Interstate Commerce Commission. Such a state of affairs is intolerable. Railroads, as well as men, cannot serve so many masters.

The investing public, and, perhaps the railroads themselves, do not yet realize the importance of the Minnesota Rate Case decision and the extent to which it places the railroads at the mercy of the various state ratemaking bodies. Whatever may be the result of the valuation of the roads as a whole, successful attack upon a schedule of intrastate rates promulgated upon all interstate roads has been made almost impossible. The great difficulty in all confiscation cases involving intrastate state rates has been in apportioning the value of the road used for interstate commerce and intrastate commerce, for whether the business is both interstate and intrastate, the question whether rates fixed for intrastate commerce afford a fair return must be determined by considering separately the value of the property employed in intrastate business and the compensation permitted in that business under the rates prescribed.

In order to systematically conduct its physical valuation work, the Commission has divided the country into five districts each of which embraces approximately 50,000 miles of railroad. The title of each district, the headquarters city and the state included in each are as follows:

Eastern, Washington, D. C., Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, Vermont, Virginia and West Virginia.

Southern, Chattanooga, Tenn., Alabama, Florida, Georgia, Indiana, Kentucky, Mississippi, Ohio, Panama Porto Rico, South Carolina and Tennessee.

FORMER GOVERNOR HERBERT S. HADLEY, OF MISSOURI.

who has been retained by the Western roads to represent them in physical valuation matters.

Pacific, San Francisco, Alaska, Arizona, California, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming.

Central, Chicago, Arkansas, Illinois, Iowa, Louisiana, Michigan, Minnesota and Wisconsin.

Western, Kansas City, Colorado, Indian Territory, Kansas, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota and Texas.

Former Governor Herbert S. Hadley has been retained by the railroads west of the Mississippi to represent them in physical valuation matters. A public statement affirming the appointment of Mr. Hadley has been made by Vice-President Holden, of the Chicago, Burlington and Quincy Railroad, who is chairman of the Western committee on federation valuation, and is as follows:

A number of the important Western lines have approved the employment of Pierce Butler, of St. Paul, and ex-Governor Herbert S. Hadley, of Kansas City, effective November 1, as joint counsel for the Western lines in the federal valuation of railroads now being made by the Interstate Commerce Commission. The completion of this work will require several years, and the great importance of it to all concerned has required the employment of special counsel to represent the roads.

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RAILWAY PRESIDENTS CONFER WITH POSTMASTER-GENERAL

In our issue of October, attention was called to a letter sent by Ralph Peters, chairman of the Committee on Railway Mail Pay to Postmaster-General Burleson, in response to his public statement that he was perfectly willing to consider any evidence the railroads had to show that they were not receiving adequate compensation for carrying the mails. Mr. Peters' letter, as have other documents published by the Committee on Railway Mail Pay, showed very conclusively that the railways are not only receiving inadequate compensation for carrying the mails, but that for a considerable part of such carriage they are receiving no compensation whatever.

Later in October the Postmaster-General had a conference with a delegation of American railway presidents for the purpose of more thoroughly going into this matter. Those who attended the conference were, President Ripley, of the Santa Fe; President Peters, of the Long Island; President Finley, of the Southern; President Delano, of the Wabash; President Brown, of the New York Central; President Rea, of the Pennsylvania; President Stevens, of the Chesapeake and Ohio; Vice-President Baldwin, of the Burlington, and Vice-President Andrews, of the Southern.

President Ripley, of the Santa Fe, acted as spokesman for his associates, being seconded by President Rea, of the Pennsylvania. They declared that the railways now were being underpaid an aggregate of $15,000,000 a year for carrying the mails, entirely aside from the extraordinary burden placed upon the roads by the parcel post matter, for which, it was maintained, they practically were receiving nothing.

President Ripley conceded that the roads were obligated to carry the mails, but expressed the hope and expectation that the Postmaster-General would give them such pay as would enable them to perform their service satisfactorily.

Mr. Burleson assured the railway men that he would try to see to it that they received all they were entitled to. He said, however, that it would be impossible for him to do anything in the way of readjusting railway mail pay until the commission created by Congress for the purpose of collecting and tabulating data bearing upon the subject had made its report, probably on March 4 next. He indicated that he considered that the railroads were under distinct obligations to the Government in many ways and that those obligations ought to be and very likely would be taken into consideration in the fixing of the compensation for mail transportation.

The Postmaster-General told his callers, incidentally, that it was his intention further to extend the facilities of the parcel post system, both by increasing the present maximum weight limit and by reducing the rates.

Some of the members of the committee later expressed themselves as being satisfied with the reception they had received. They attached due importance to the Postmaster-General's assurance that he proposes to see justice done the railroads and they feel confident that he cannot fail to perceive the strength of their case when he has had time to study the data submitted on the subject. It is conceded, however, that there is little prospect of obtaining an increase of mail pay until some time after Congress has received the report of the Bourne Commission which has until March 4th to make such report.

There is a possibility that the railroads may obtain an annual weighing on all lines instead of the quadrennial weighing now practiced. This change lies within the present authority of the Postmaster-General. Mr. Burleson is inclined to regard annual weighing as too expensive, but the railroads have informally and tentatively offered to bear this burden themselves, and it is possible that an arrangement satisfactory to the Postmaster-General and of some benefit to the railroads may be arranged.

CONVENTION OF NATIONAL ASSOCIATION OF RAILWAY COMMISSIONERS

The convention of the National Association of Railway Commissioners which was held in Washington from October 28th to 31st, was notable chiefly for one important piece of legislation recommended, namely, that Congress should empower the Interstate Commerce Commission to regulate the capitalization of all interstate carriers. The importance of this recommendation was apparent in view of the unanimous agreement of the members of the various state commissions, practically all of whom agreed that it would be better to turn this work over to the Federal Commission than to have capital regulated piecemeal by the various states.

At the opening session on October 28th,

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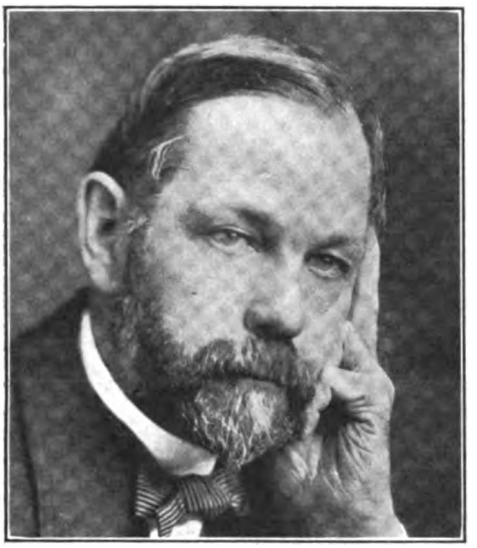

O. P. GOTHLIN,
the retiring president of the National Association of Railway Commissioners.

President O. P. Gothlin, formerly of the Ohio Commission, presided. Edgar E. Clark, chairman of the Interstate Commerce Commission, made an address of welcome to the delegates, referred to at greater length elsewhere, which was thought by many to indicate a view favorable to an advance in rates.

President Gothlin, in his opening address, asserted that the members depended too much upon the committees who presented excellent reports but which were not followed by any definite action and that furthermore these reports were frequently the work of the chairman alone. He urged state commissioners to take more interest in the complaints of all shippers, even those concerning interstate commerce, and suggested that formal complaints should be abolished and that the Commission hear ex-parte complaints, assuming the burden of prosecuting the cases.

Commissioner McChord, of the Interstate Commerce Commission, in presenting the report of Committee on Amendment of the Act to Regulate Commerce, recommended

COMMISSIONER L. B. FINN, OF KENTUCKY,
who has been elected president of the National Association of Railway Commissioners.

that complaints asking for reparation may be filed with the Commission in three years from the time the cause of the action accrues instead of two. He also recommended an amendment to provide that failure to post contemplated rates at the time proposed tariffs are filed with the Commission shall prevent the new rates becoming effective.

Chairman Clark, of the Interstate Commerce Commission, suggested that carriers be penalized for failure to post tariffs at every station.

The report of the Committee on Delays Attendant upon the Enforcement of Orders of Railway Commissioners was presented by C. B. Aitchison, of Oregon, who

WILLIAM F. CONNELLY,
re-elected secretary of the National Association of Railway Commissioners.

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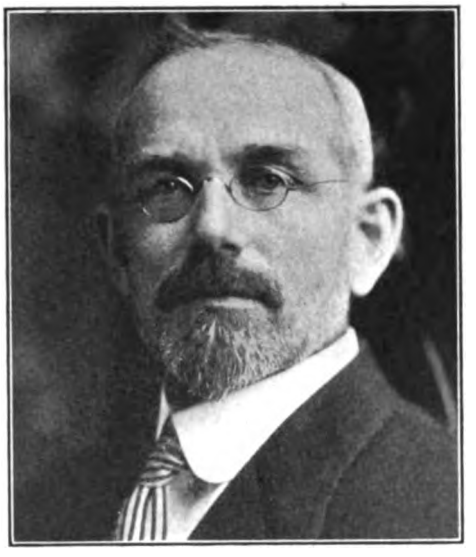
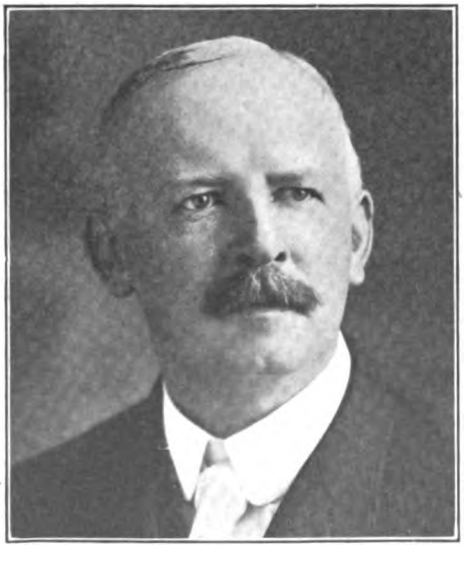


B. H. MEYER,

of the Interstate Commerce Commission, who urges that the railways devote greater attention to the assignment of expenses as between freight and passenger service.

recommended that the committee be abolished and its work be transferred to the Committee on Legislation. This suggestion was adopted.

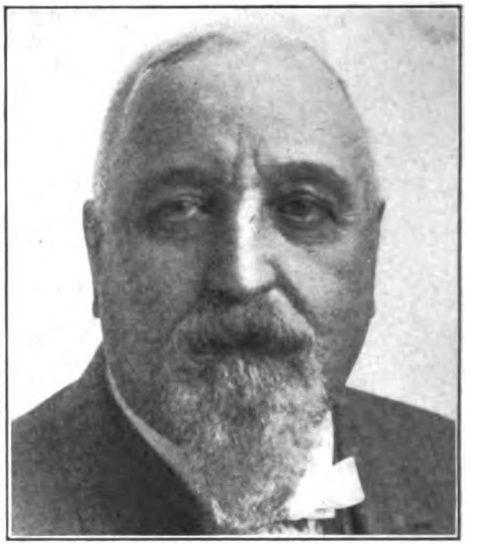
The report of the Committee on Express Service and Rates presented by Martin S. Decker, of the New York Public Service Commission, emphasized the importance of the work done by the Interstate Commerce Commission in the regulation of express



COMMISSIONER MARTIN S. DECKER, OF NEW YORK.
who presented a report on express service and rates.

matters and suggested the need for a committee to consist of one representative from each of the state commissions, representatives of the Interstate Commerce Commission and of the express companies to try to arrive at some working basis for the uniform adjustment of intrastate rates. It was voted to appoint a committee representing the various commissions to formulate a uniform method of stating intrastate rates.

The report of the Committee on Grade Crossings and Trespassing was presented by Charles Elmquist, of the Minnesota



WILLIAM KILPATRICK,

secretary of the Illinois Railroad and Warehouse Commission, who declared it was of greater importance to take steps to avert collisions and derailments than to provide steel cars to mitigate their results.

Commission. It was pertinently suggested that at the present time there was more need for action than for the presentation of views.

The Committee on Safety Appliances was represented by William Kilpatrick, secretary of the Illinois Railroad and Warehouse Commission, who presented an individual discussion in which it was pointed out that it is of far greater importance to take steps to avert collisions and derailments than to provide steel cars to mitigate their results. He also referred to the need for the enforcement of laws to prevent trespassing. He asserted that the improvement most needed at the present time is the control of trains by an absolute space limit carefully defined by block signals and rigidly enforced, and, if necessary, further protected by automatic train stops.

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CHARLES ELMQUIST,
of the Minnesota Railway Commission who presented a report on grade crossings and trespassing.

The report of the Comimtte on Legislation was presented by Lawton T. Hemans, of the Michigan Commission. He asserted that the legislative need of the present is the elimination of the needless and senseless conflict that exists between the state and federal authorities upon phases of interstate and intrastate commerce. He recommended that proper action be taken to permit the Committee on Legislation to confer with the Commissioners on Uniform State Laws at their next annual meeting so that there may be brought about a basis of co-operation in the preparation and support of legislation affecting commerce and transportation within the various states.

An address delivered by L. B. Finn, of the Kentucky Commission, vigorously opposed the idea that the Federal Government had power to regulate intrastate rates as soon as Congress sees fit to exercise the power.

The report of the Committe on Railway Capitalization was presented by John M. Eshelman, of California. It included a review of the various state laws dealing with capitalization, and a large number of letters from state commissioners as to the practical working of the laws. The following is a summary of its recommendations which, as stated in the opening paragraph, received the unanimous endorsement of the Association with the exception of the fourth which provides for "no limitation as to the amount for which stock or bond shall be sold":

We do not believe it necessary for the purposes of this paper to recommend any particular form of an act, but we do believe that we should recommend the minimum which should be provided, and this minimum we believe should be the following:

1. The limitation in the act of the purposes for which the issue of stocks and bonds shall be permitted.

2. Authority to the Commission to see to it that the proceeds of the sales of stocks and bonds are devoted to the purposes for which they are issued.

3. No stocks or bonds to be issued without the positive approval of the Commission, or at least a veto power should be reposed in the Commission similar to the power which the Interstate Commerce Commission has to suspend rates. If this method is pursued, the same full investigation should be required on the part of the Commission in every instance, as is required when the affirmative action of the Commission is provided for.

4. No limitation in the statute as to the amount for which either stocks or bonds shall be sold.

5. The power shall be reposed in the Commission to impose conditions and to grant the application of the utility, either in accordance with such application or in lesser or greater amount, and to impose such other conditions as the Commission shall deem necessary.

6. Regulation of the stocks and bonds of interstate common carriers to be delegated to the Interstate Commerce Commission.

Basing our recommendation upon the foregoing conclusion, your committee respectfully recommends:

That Congress immediately pass an act empowering the Interstate Commerce Commission to regulate the stocks and bonds of interstate carriers in the manner and to the extent hereinbefore outlined.

In conclusion, your committee desires to impress upon the members of this Association the tremendous importance of the matter we have been here considering. The regulation of the securities of utilities, other than interstate carrers, is being handled with increasing efficiency by the various states from year to year, and the beneficial results flowing therefrom are being recognized, not only by the public as patrons of these utilities, but by the utilities themselves. In those states where most adequate regulation is now being provided, money is being invested in increasing amounts and the stability of securities is being established and healthy financial conditions are being brought about. In substantiation of this conclusion, we respectfully invite your attention to those states wherein the commissions have been given adequate and plenary authority to deal with this subject, and suggest that the members of this Association consult with the representatives of the utilities from such states in the belief that such representatives will bear out the statement herein contained that from the viewpoint of the honest public utility, honest, adequate and intelligent regulation is a good thing.

In the case of the interstate carriers, however, by reason of the facts hereinbefore referred to, it is possible for the various states to regulate, and the federal government should not lag behind in this field wherein it alone is competent to act.

Milo R. Mabie, of New York, presented the report of the Committee on Railroad Taxes and Plans for Ascertaining the Fair

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Valuation of Railroad Property. This consisted of a series of special papers as follows:

A Just and Scientific Basis for the Establishment of Public Utility Rates, with Particular Attention to Land Values, by Commissioner Max Thelen, of California. Discussed by Commissioner Clifford Thorne, of Iowa.

Elements of Appreciation in Railroad Valuations, by Commissioner George A. Henshaw, of Oklahoma.

Accounting Side of Rate Making, by Dr. E. W. Bemis, of Chicago. Discussed by Commissioner R. Hudson Burr, of Florida.

Depreciation and Its Relation to Fair Value, by Dr. A. F. Weber, Chief Statistician of New York Public Service Commission, First District.

Valuation of Property Constructed from Surplus Earnings, by Commissioner Forest E. Barker, of Massachusetts. Discussed by Commissioner W. M. Daniels, of New Jersey.

On motion of Commissioner Thorne, of Iowa, a resolution was adopted providing for the appointment by the president of the Association of a committee of fifteen to cooperate with the Interstate Commerce Commission in making the valuation of railway property.

Mr. Klapp of the Wisconsin Demurrage Bureau, presented a paper on Demurrage as a Measure of Relief from Car Shortage, in which he showed that car capacity has increased 69.22 per cent, locomotive tractive power 109.5 per cent, and ton-miles only 28 per cent. He suggested that relief can be found in higher demurrage rates which will make it more economical for the business man to store his own goods than to pay the carrier for doing it for him.

B. H. Meyer, of the Interstate Commerce Commission, presented the report of the Committee on Statistics and Accounts, urging that greater attention be devoted by the railways to the assignment of expenses as between freight and passenger service. In discussing the paper Commissioner Clark said there is urgent necessity for the adoption of a uniform method of reporting loss and damage claims.

Clifford Thorne, of the Iowa Commission, presented the report of the Committee on Uniform Classification and Simplification of Tariff Sheets, which after reviewing the history of the agitation for uniform classification, concluded with a recommendation "that there should be appropriate legislation by Congress, authorizing and directing the Interstate Commerce Commission, assisted by a body of disinterested experts appointed by the Commission, and paid by the federal government, to frame and promulgate a classification of freight to apply uniformly over the United States."

James E. Sague, of the New York (Second District) Commission, presented the report of the Committee on Rails and Equipment, which included a general discussion of rails, speed recorders and steel cars, supplementary to the committee's report of last year.

At the suggestion of Commissioner Marble the constitution was amended to make the Canadian Board of Railway Commissioners eligible to membership in the Association.

The following officers were elected for the ensuing year: President, Lawrence B. Finn, of Kentucky; first vice-president, Clifford Thorne, of Iowa; second vice-president, Robert R. Prentis, of Virginia, secretary, William H. Connolly, Washington, D. C.; assistant secretary, William Kilpatrick, of Illinois.

The next convention will be held at Washington on November 17, 1914.

ANNUAL MEETING OF RAILWAY BUSINESS ASSOCIATION

The Railway Business Association holds its fifth annual meeting and dinner in New York on December 11th. The banquet to which many prominent railway officials have been invited, begins at 7 P. M., promptly, at the Waldorf-Astoria Hotel. The speakers for the evening are to be Mr. Howard Elliott, chairman of the Board of the New York, New Haven and Hartford Railroad, and the Honorable James M. Cox, Governor of Ohio.

Each year these annual dinners of the Railway Business Association have been more fully recognized as an economic event of unusual significance. Speakers on each occasion have been men of prominence and recognized authority in their respective fields, and their broad gauged discussions of current railway problems have proved an important contribution to the effort constantly being made to solve such problems in a manner which will prove beneficial both to the railroads and to the public.

Not satisfied with the influence of these annual banquets, the Railway Business Association during each year of its existence

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HOWARD ELLIOTT,
Chairman of the New Haven Board.

GEORGE A. POST,
President of the Railway Business Association.

HONORABLE JAS. M. COX,
Governor of Ohio.

Mr. Elliott and Governor Cox are to be the principal speakers at the fifth annual banquet of the Railway Business Association to be held in New York on the evening of December 11th.

has been actively engaged in conducting certain investigations, the results of which have been put in bulletin form, widely distributed, and have undoubtedly had their effect in the enlightenment of the public mind. In fact, the influence of this great organization, which numbers among its membership many of the most prominent business enterprises of the country, has been of such a definite character as to leave no doubt as to its practical value. Trade organizations, in particular, have felt its influence, and many of the resolutions which have been passed within the past year or two, demanding a more liberal treatment for the carriers, can be attributed, to no small extent, to the effective activities of this Association.

The forthcoming banquet is likely to prove one of the most notable in the history of the organization. In a notice recently issued to its members concerning both the meeting and the dinner, the following brief statement is made regarding the speakers:

In Mr. Elliott the Association will be so fortunate as to hear the man who has been summoned to solve a problem of extreme difficulty in railway operation and in winning the confidence of the public. Through achievement in the Southwest and in the Northwest he attained by ability, character and temperament a leadership of first magnitude both in management and in public relations. In honoring the Railway Business Association by speaking at its dinner he will move among hosts upon whom in their individual activities he must lean for the physical instruments of transportation, and to whom in their organized endeavor he may look for moral support. The problem of gaining the popular good will for the railways brought the Railway Business Association into existence. In our pulpit Howard Elliott properly stands to deliver an address to the American people.

Mr. Cox, experienced in business as a publisher, trained in economics as an editor, twice representative in Congress and now Governor of the great State of Ohio, has displayed in public life a fusion of generous altruism with hard-headed concern for the stability of industry, commerce and transportation. His topic will be ideals in business, particularly the ideals which should animate employers, employes and the public in their relations one to another. Habituated to the practical task of solidifying the community for working co-operation, Governor Cox speaks plainly in advising modification of attitude by whatever element. James M. Cox will be at home in the Railway Business Association atmosphere of conciliation. His acceptance of our invitation to deliver one of his thoughtful, vigorous and snappy addresses is a high compliment to our organization.

In a recent statement made by Mr. Post, president of the organization, he called attention to the fact that the Railway Business Association has now been in existence five years, and that its constant effort has been that of conciliation between the railways and the public. He said:

We have in all that time constantly and systematically studied railway needs, railway practices, governmental policies and public opinion; and it is our belief that at the present moment the American people are prepared to a degree unknown in many years to consider railway problems with open minds and put themselves in the railway manager's place. Foolish enactments and shortsighted regulations may still be apprehended just as mistakes and shortcomings are still chargeable to some railways. Permanent advances take time but the people are willing to be shown, and their official representatives will eventually realize the intelligent scrutiny which their constituents are bringing to bear on all sides of railway questions.

What has increased the prevalency of this attitude? A combination of influences.

To begin with, the managers more than ever

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before have studied public sentiment, endeavored to understand and sympathize with changing standards of public exaction and made evident to their communities a determination to meet the public desire in every reasonable and feasible way and furnish full explanation when compliance is withheld. Managers have come to recognize that they are salesmen of transportation and that just as the business man must deal fairly and agreeably with his customers in order to avoid loss of trade from competition, so the railway manager must employ like methods to escape damage from regulation conceived in retaliatory spirit.

A second factor has been the patient, persistent and thorough dissemination of facts upon phases misunderstood. Overcapitalization was at one time the bugbear of many shippers with whom our Association corresponded or conferred. Many persons still believe that capitalization should be a bar to readjustment of freight rates, but there are few business men of prominence and influence nowadays who do not understand that American railways pay a much smaller return to capital than roads in other countries, that the chief reason for this has been the expenditure on the property of surplus which foreigers commonly distribute in dividends, that the freight rate is made not to yield a specific amount of revenue, but in order to move business which will add to the prosperity of the region and hence of the railway. Shippers now more generally appreciate that service is more important than rates and that a railway company, instead of being an inexhaustible barrel of money, is a business enterprise whose expenses nearly equal and sometimes exceed its receipts and which can only provide good cars and plenty of them, with quick movement, if its net earnings place it in position to do so.

Railway credit, too, is beginning to be comprehended. Five years ago most shippers and public men with whom we exchanged ideas seemed to think the desired advance in freight rates was to be used to pay higher rate of dividends to the stockholders. It has been an important task to impress upon them so that it might become a habitual thought that the main necessity is the sale of new securities for providing improvements and additions and that the new revenue would either go wholly to buyers of those securities or serve to bring a lower return on outstanding securities up to a rate which would make new issues attractive. The most hopeful sign is the growing appreciation that whether increased revenue is spent directly for improvements or indirectly in raising new capital for improvements, in either case the shipper is paying money to provide himself with facilities.

In various ways business men are manifesting their willingness to consider without prejudice the advance in rates now proposed for the Eastern roads. A symposium in the *American Lumberman* embraces replies from twenty-six concerns, of whom only nine oppose the advance, while five are open to conviction and twelve are in favor, the latter including two recent presidents of the National Wholesale Lumber Dealers Association, F. R. Babcock, of Pittsburg, and F. E. Parker, of Saginaw, Mich. Resolutions favoring the advance have been adopted by the Michigan Manufacturers Association, the New Jersey State Chamber of Commerce by referendum and by prominent organizations in St. Louis, Cincinnati, Columbus, Pittsburgh, Philadelphia, Baltimore and other cities.

Among the journals which did not advocate the advance in 1910 and now urge it are the *Chicago Tribune* and the *Saturday Evening Post.*

The Interstate Commerce Commission may feel, as it is entitled to, that if its investigation shows the need of larger revenue, a strong body of public opinion will be found approving a favorable decree.

A GRADUATED FREIGHT RATE

The traffic manager of a great industrial enterprise located at Pittsburgh, has recently prepared an article on the heavier loading of cars. In this article it is pointed out that while there has been a great increase in the capacity of freight cars within recent years, such increase has signally failed to accomplish a proportionate increase in the average load. The author then proceeds to develop a plan whereby this difficulty may be overcome and the solution to the whole problem, from his point of view, appears to rest in a system of graduated minimum weights both for carload and less-than-carload lots with a correspondingly graduated scale of freight rates. To quote from the article:

> The traffic officials of the railroads have it in their power to really solve this question in a very simple manner by issuing graduated commodity rates based on increased carload minimum weights, i. e., commence on the present basis of rates, with the present minimum weights, and have a table of higher minimums with lower rates.
>
> For instance, from Seattle to New York the table of rates on lumber could be made as follows:

Minimum Weight		Rate		
300	pounds	$2.25	per 100	lbs.
1000	"	2.00	" 100	"
2000	"	1.75	" 100	"
10000	"	1.50	" 100	"
20000	"	1.25	" 100	"
30000	"	.85	" 100	"
40000	"	.75	" 100	"
60000	"	.60	" 100	"
80000	"	.50	" 100	"

> The present freight rate on lumber from the Pacific Coast to New York is 75 cents per 100 pounds with twenty-five or thirty minimum carload weights, that are based upon the cubical capacity of the car, and the less-than-carload rate is $2.25 per 100 pounds.

Of course railway traffic officials will recognize that these suggestions contain no new thought in freight rate construction, but the author has evidently overlooked a number of important points in the development of his plan which have long been considered practically unsurmountable by traffic officials.

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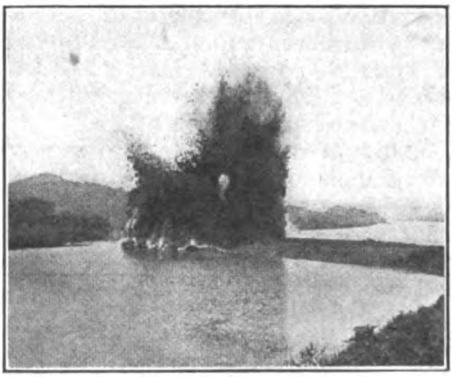
In the first place, graduated rates, such as the author proposes, would tend to increase the advantage of the large dealer over his less fortunate competitor and thus be in direct opposition to the principles which have largely governed the activities of political bodies within recent years. In other words, a graduation of rates would tend to perpetuate and increase the power of so-called trusts and big combinations. Admitting that the carload rate gives an advantage to those who are able to ship in carload quantities, this single division has largely thrown the country's industries into two distinct groups, each group of which can at least compete on an equal basis so far as freight rates are concerned. Should the graduated rates be employed, however, it would work unbearable hardship to the smaller dealer whether he be wholesaler or retailer and in innumerable instances would undoubtedly drive him out of business. Such a tendency is un-American and certainly would not be considered for a moment by the present regulative authorities.

No one desires more than the railways, that cars shall be loaded to their maximum capacity as this would mean greater economies in practically all branches of the service. It also may be that the author's point is well taken that loading of cars to their full capacity entails an extra loading expense which the shipper does not feel called upon to assume, but this could not fairly be met by a graduated rate such as the author proposes, particularly as the decrease involved would be likely to offset many times any additional expense occasioned by loading the car to capacity. Whether the author realizes it or not, many railway officials and shippers in the past have tried to excuse the practice of rebating with practically the same argument and while, in this case, the favor was often granted to the individual, in the case of the graduated rate it would only be transferred to a favored class, which would make it, to a degree at least, as obnoxious. Present regulative tendencies are to simplify and equalize freight rates, not to add to their complexities and inequalities, and the author's plan, therefore, is one which would hardly receive the endorsement of those in authority.

Furthermore, to upset the present rate schedules in the manner he suggests would bring about chaotic conditions both in and out of the railway service and would undoubtedly seriously disturb the credit of the railways at a time when such credit needs every protection possible. The author suggests that such a graduation of rates would practically mean an increase in the income of the railways but such suggested schedules as he presents in his article, or his rather vague references to the economies which would result from a greater capacity loading of freight cars, do not appear to sustain his contention. As a matter of fact, such a graduation of rates could mean only a sharp decrease in such rates, with no guarantee that this could be offset by the greater economies which would be affected. As the crying need of the hour is a substantial increase in rates, it is hardly a propitious time to attempt an experiment of this character.

AN HEROIC ACHIEVEMENT

The Panama Canal is receiving its final touches and within a comparatively short time will be thrown open to the fleets of the world. The United States is justly proud of this stupendous achievement not only because it represents the greatest engineering feat in all history but because, in its building, this country has demonstrated its ability to complete a task at which other nations had failed. Furthermore, the manner in which the task was performed, has set an example which cannot but prove stimulating to all mankind. While discipline among the employes of the Canal Zone has been rigid, it has not been unmixed with sympathy and has always been guided by absolute justice. Graft has been an unknown factor, and the civic development in a region where sanitation and right living were practically unknown, constitutes one of the remarkable features of the work.



DESTROYING THE LAST BARRIER BETWEEN THE ATLANTIC AND PACIFIC OCEANS BY BLOWING GAMBOA DIKE.

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(Illustration from the *London Graphic.*)

LOCATION OF THE PANAMA LAND SLIDES WHICH ARE STILL EXPECTED TO CAUSE SOME TROUBLE BEFORE THEY ARE EFFECTUALLY CHECKED

In the RAILWAY WORLD of October, attention was called to the passage of a lone steamer through the Gatun Locks on September 26th. On October 9th the west flight of these locks were used for a second time for lifting three groups of dredging vessels and a floating pile driver in tow of tugs; in all, thirteen vessels. A few days later, on October 14th, the first lockage on the Pacific end of the Canal was affected when a tug, steam launch and three barges were raised together through the west flight of Miraflores locks from the Pacific entrance channel to the surface of Miraflores Lake. While considerable is still left to be accomplished before the Canal will be available from end to end for large vessels, the work is so nearly completed as to preclude any chance of serious delay.

The only possible delay which may occur in the completion of the Canal rests in the danger of a continuation of the slides which have occurred at three places along its banks. These slides, in the opinion of some engineers, are likely to continue for some time to come, although it is believed by those in charge that they will be able to maintain a channel of sufficient width and depth for large ships and that such as may occur in the future will not delay the completion of the Canal, nor will they seriously interrupt the passage of vessels through it after its completion. Efficient machinery for excavating and dredging is constantly on hand for this purpose.

In the meantime, across the Continent at San Francisco, work on the Exposition which is to celebrate the completion of the Canal and which is scheduled to open February 20, 1915, goes rapidly forward. Reports from the Pacific Coast state that the Panama Pacific International Exposition is more than two thirds completed.

The estimate is based upon the total amount of work necessary in the complete preparation of the Exposition. Every department of the Exposition is pronounced by executives familiar with the organization of universal expositions to be further advanced than were those of any of the greatest expositions held in America at a similar pre-exposition period. Twenty-seven of the world's nations have accepted the invitation conveyed through the Department of State; this record is unprecedented at a time one year and one half before the opening. Thirty-five states have selected sites for state pavilions. Almost seven thousand applications for concession privileges have been received. The applications for exhibit space would, if all were granted, exhaust the entire exhibit area.

Construction is far advanced. The most difficult part in exposition building is past. An immense amount of preparatory work has been accomplished. Ten of the fourteen huge exhibit palaces are now under construction. One building, the Service Building, is completed. Contracts for three additional buildings will be let within a short period.

According to the *American Review of Reviews* it does not now seem likely that the Exposition will suffer very much from lack of representation from British or German industries. A movement of British merchants and manufacturers, similar to that engineered in Germany by Herr Ballin, of the Hamburg-American steamship line, has now been set on foot in England. The League of Industrialists, Germany's foremost organization of manufacturers, at its annual convention in Leipsic, late in September, unanimously decided to support a private movement for German exhibition in San Francisco. Official acceptances of invitation to participate have now been received from France, Holland, Portugal, Spain, Sweden, Denmark, China, Japan,

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Canada, Mexico, and practically all the other Latin-American republics.

Appropriations by state legislatures range from $35,000 in North Dakota to $700,000 in New York, making a total of appropriations by state legislatures of more than $8,000,000. Among the many interesting new features will be the working out of a color scheme of the famous artist and illustrator, Jules Guerin. There will be no white at the Exposition. Instead there will be vermilion, yellow, and orange in various shadings. There will be no purple or blue. The sea and the sky will furnish these. Moreover, the predominant color in the buildings will be the artistic blend of pink and yellow which made the Roman Parthenon and the Greek Acropolis so impressive.

PUBLIC STATEMENTS BY PROMINENT OFFICIALS

On the platform and through the public press, prominent railway officials continue to discuss railway problems in an effort to assist the public to a fuller appreciation of the difficulties which confront present day railway management. In discussing the possibilities of government ownership, Samuel Rea, president of the Pennsylvania Railroad, is reported in the public press to have recently made the following statement:

There is bound to be a divergence of opinion regarding Government ownership of railroads. We are in a period of dissatisfaction and criticism of the entire political and social structure, and sound conclusions cannot be reached without clear thought and careful consideration. There are two sides to the question. Government ownership is bound to come quickly if, by continued state and federal legislation and commission orders, railroad control is assumed without the responsibilities of management. The results are evidenced by restriction of railroad earnings, by increase of railroad expenses, over which the railroads have no control, by laws ordering extra and unecessary train crews, elimination of grade crossings without the states or municipalities co-operating and participating in the cost, the public improvements demanded by way of steel cars, station improvements and better facilities, the heavy increase in taxes, higher wages and greater cost of everything pertaining to railroad operation.

Therefore, while the railroads have furnished liberally large amounts of capital for improvements, it is a fact that these large expenditures in the past few years have earned little, if any, return, and unless conditions change and the railroads are impartially and fairly dealt with private capital cannot much longer be induced to provide the tracks, terminals and equipment demanded by the business of the country. Railroads, consequently, must restrict their programs to improvements and operations to accord with that condition. Then, whether the results are justifiable or not a universal demand may come for the nationalization of railroads by compelling the Government to do what private capital can no longer be induced to do.

There is a strong other side to this question. The constructive side of the sober judgment of the country will reassert itself. Within a comparatively few years there would be, in my judgment, a demand to return to private ownership and management of the railroads of this country, because I believe the venture would be unsuccessful and wasteful, and because government activities and credit would, in view of the world-wide demand for capital, be found insufficient to meet the pressing demands from every part of this large and growing country to improve living and agricultural conditions, foster commerce and other measures to insure national progress.

All intelligent citizens realize that government ownership could not control more effectively the railroads than present strict state and federal regulation, accepted and supported in good faith by the railroads. The nation at large will demand similar control by the federal, state and municipal governments against the extravagant expenditures for non-productive projects, which are afterward expensive to maintain. Public opinion finally will assert itself by repealing unnecessary, punitive and unwise legislation against the best interests of the railroads, their employes and the public. Time will bring a due appreciation of the great work, and of the present honest and efficient management of the railroads, and their great share in making and continuing the prosperity of the country. I confidently hope that the earliest evidence of public confidence will be unanimous approval of the small rate increase now requested by the railroads.

President Ripley, of the Atchison, like President Rea, of the Pennsylvania, sees ultimately no escape from government ownership, unless government regulation deals in a fairer manner with the carriers in the future than it has in the past. He says:

A system whereby private individuals furnish money, but have practically no voice in the management, may go along temporarily and by previously acquired velocity, but cannot long endure.

The certain result will be Government ownership of railroads. Few want this now, and practically everybody realizes it would be about the worst thing that could happen to the Government.

When railroads fail to give the public all it wants, as they will under present conditions, there will come the demand that the Government step into the breach.

But while it comes a little late, it is pleasant to observe that the chairman of the Interstate Commerce Commission has at last observed that Congress and the states assisted by the body over which he so ably presides have at last brought railroads to the point where they can go no further.

Do not infer that I am opposed to some regulation of railroads. Even the Interstate Commerce Commission law with all its crudities and absurdities has by no means been unmixed evil. A rate making commission elected by popular vote is manifestly and inevitably partisan and the com-

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mission appointed by an executive officer is usually merely a reward for political activity, so chances for impartial judgment are small indeed.

A commission appointed with a sole view to fitness and capability and for long terms with good salaries should be of much use to the public and railroads, this applying particularly to state commissions.

President J. M. Fitzgerald, of the Western Maryland Railway, in a speech on November 13th, at the banquet of the Railway Development Association held in Baltimore, illustrated forcibly the necessity for higher rates for transportation if the carriers were to be placed in a position to provide adequate transportation facilities for the prompt movement of agricultural and other products. Mr. Fitzgerald made it plain that the present rates of compensation received by the carriers are no longer sufficient to meet the increasing costs of operation, and that it was an admitted fact that the railways cannot properly shoulder the burdens of higher operating expenses unless they are permitted to advance rates.

Irving T. Bush, president of the Bush Terminal Company, recently had the following to say regarding the necessity for the proposed increase in railroad freight rates:

The great trouble with restrictive legislation which has been passed in this country in regard to transportation is that it has defeated the aims which it was proposed to further, and has encouraged certain abuses which it was intended to prevent. When the national, state or municipal government steps in to control certain business, and thereby drives private capital away, that government has either to supply the means of commerce and business or it is going to be a hurt to that particular commerce or business.

IRVING T. BUSH,
President of the Bush Terminal Company.

With this great country and its growing needs for increased transportation facilities, the legislature has made it impossible for new developments by private capital. The Government has practically taken control of the railroads, and has thereby put a stop to further investments of private money in the extension of railroads. This has practically defeated the end for which the legislation was intended, the agitation having come principally from the West. The West is in need of further transportation developments, and westerners are beginning to realize that the Government is not doing much to that end, while it has put a stop to private enterprise in that direction. Westerners are therefore, themselves, the greatest sufferers. The place must soon be reached where the Government will cease to permit increases to operating expenses without a relative increase in rates.

President Finley, of the Southern Railway Company, in speaking on "The Relations of the Railways to Southeastern Development," at Knoxville, Tenn., on October 21st, had the following in part to say:

I am satisfied that, from whatever viewpoint we may consider the railways of the Southeast, we will find that rail transportation is an essential part of every business enterprise in the section. I may even say that it is the most important single factor in business, because distribution is essential to the largest and most profitable development of every business enterprise. Without transportation the market for any commodity would be limited to the locality of its production. The railways and other distributing agencies bring producers into touch with the markets of the world. For this reason public opinion should not sustain unjust treatment of the railways any more than it would sustain injustice to any other part of the business structure of the Southeast. The railways are so intimately linked up with every business enterprise in the Southeast that any injury inflicted on them will react upon the whole body politic just as certainly as an injury to any part of a man's body will injure the man.

The ability of the railways to carry the constantly increasing products of the section to market has been in great measure due to a larger and more efficient use of their facilities. There is, however, a limit beyond which any machine or plant can not be efficiently operated and, if the volume of traffic in the Southeast is to continue to grow in future years at the same rate as in the past, an increase in railway facilities will be essential to the satisfactory marketing of the products of farms, forests, mines and factories.

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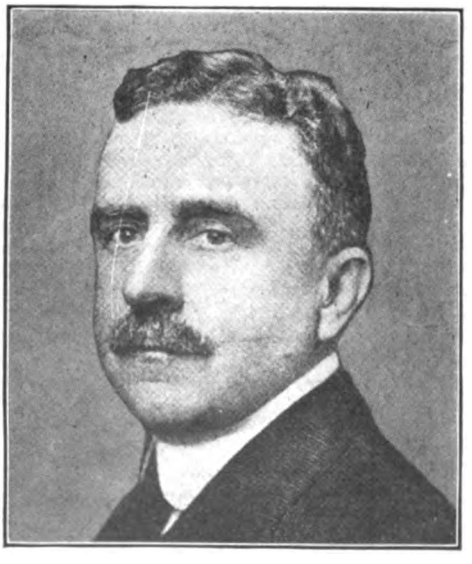
ANNUAL MEETING OF NEW HAVEN

At the annual meeting of the New York, New Haven and Hartford Railroad, held at New Haven, Conn., on October 22d, the stockholders elected James L. Richards, president of the Boston Consolidated Gas Company, and Galen L. Stone, of Hayden, Stone and Company, directors, to succeed Theodore N. Vail and Alexander Cochrane, who resigned so that they might remain directors of the Boston and Maine. Other directors were re-elected. The stockholders also approved the annual report.

After the stockholders' meeting the directors elected Haward Elliott chairman and James H. Hustis president.

The new Executive Committee consists of: William Rockefeller and J. P. Morgan, New York; Charles F. Brooker, Ansonia, Conn.; William Skinner, Holyoke, Mass.; Arthur T. Hadley, Howard Elliott and James S. Hemingway, New Haven, Conn.; Robert W. Taft, Providence, R. I.; Thomas Dewitt Cuyler, Philadelphia, and W. Murray Crane, Dalton, Mass.

Several new names were added to the Board of Directors, which has a membership of twenty-seven, fourteen of whom are residents of Connecticut. Those re-elected from the existing Board were: William Rockefeller, C. F. Brooker, Edwin Milner, William Skinner, D. Newton Barney, R. W. Taft, J. S. Elton, J. S. Hemingway, A. H. Robertson, F. F. Brewster, H. K. McHarg, J. L. Billard, G. F. Baker, T. D. Cuyler, Edward Milligan, F. T. Maxwell, Samuel Rea, Laurence Minot, M. F. Plant, J. P. Morgan, Howard Elliott, Arthur T. Hadley and Murray W. Crane.



JAMES H. HUSTIS,
The new president of the New Haven System.

The new men are: J. H. Hustis, John T. Pratt, of New York; James L. Richards, of Newtonville, and Galen L. Stone, of Brookline, Mass.

After announcing the vote for directors, Chairman Elliott, in an address to the shareholders, announced that the dividend would have to be cut to four per cent.

He said: "The past is gone. You stockholders and the management have a magnificent property to take care of. We must all pull together for the best interests of the New Haven road and the territory it serves.

"There is no use mincing matters. The dividend will have to be cut to four per cent. Gross earnings have fallen off and expenses have advanced. We hope to be able to maintain a four per cent dividend from now on and to do better in a year or two. It is better for you stockholders to suffer now than two or three years from now."

The New Haven has come to an agreement with the conference committees of the Brotherhoods of Locomotive Enginemen and Firemen with regard to the revised rules recently issued by the road governing the working conditions. The following statement has been issued by the management:

"After several conferences between the committees representing the engineers and firemen and one representing the management, rules were agreed to which will be issued at once. This schedule embraces all the principles for which the management contended, as well as all the safeguards against possible misinterpretation for which the men contended.

"The outcome is satisfactory to both management and men. It was not possible that it could be otherwise, when safety only was involved. The management is assured that it is to have the earnest co-operation of the men, as well as of the organization in bringing about not only a safe but an improved service. It accepts this assurance in good faith. With men and management in accord in a common purpose, the outcome should not be in doubt."

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Contemporary Opinion

Railroad Nationalization.

(From the "Wall Street Journal.")

"CLIFFORD THORNE, who plays St. George to the railroad dragons of Iowa, is a man of engaging personality and much earnestness. He told the Convention of Railroad Commissioners in Washington that the Government could take over the railroads of the country for the par value of their stocks and bonds, fund the purchase at three per cent, raise the pay of employes $100,000,000 a year, and still have enough surplus earnings left to spend on improvements three times as much as railroad men say the country needs. Yet Mr. Thorne says he is not in favor of Government ownership. Why?

"Aside from several mountains of vexatious questions which for the moment he allowed his imagination to soar over, Mr. Thorne may have been subconsciously aware that the railroad payroll is $1,300,000,000 annually, that his $100,000,000 additional would be an advance of 7.7 per cent, and that such a niggardly concession from a rich and generous Government would not stay the demands of the brotherhoods, especially their demands upon a Democratic State, for more than six months. Witness what happened on the Western Railway of France after nationalization, where two years after purchase by the State, annual earnings had increased $2,316,000 and expenses $6,349,700, reducing net profits by $4,033,700, a loss of nearly one-third.

"Possibly Mr. Thorne had also in mind the fact that no government of Europe enjoys a three per cent credit except Great Britain, which owns no railroads. On what interest basis the United States could raise $16,000,000,000, nobody knows. Of our $060,000,000 national debt, all but $50,000,000 enjoys the "circulation privilege," which creates for the bonds an extra investment value. The Panama bonds not eligible to secure national bank circulation are three per cents, and their bid price in the market is 99. Mr. Thorne may have based his assumption as to the nation's credit in such a transaction on that fact, but if so he needs to remind himself of the difference between the borrower of $50,000,000 and the borrower of $16,000,000,000.

"It is true that the transaction Mr. Thorne describes would not involve the raising of sixteen billions of wholly new capital, in addition to the country's present fixed investment. It would mean, however, the shifting of that volume of capital from investments paying from four to seven per cent and averaging above five per cent to a single form of investment paying a flat three per cent. Now, one of the troubles that beset the railroads to-day is the persistent refusal of capital to go into good securities at, say, 4½ per cent while rather inferior securities yielding five to six per cent find a comparatively good market. In the face of this fact and the recent experience of such borrowers as New York City and even New York State, is it reasonable to assume that the owners and creditors of the railroads stand ready to give up something like $350,000,000 a year for the security of principal that a railroad-owning Government might afford? No borrower, whether individual, corporation or government, ever largely increased his indebtedness without affecting his credit."

To the above the "Wall Street Journal" might have added another statement found in a letter recently written to Mr. Thorne by President E. P. Ripley, of the Atchison. In his letter, Mr. Ripley declares that Mr. Thorne made an error of more than $200,000,000 in attempting to show the savings possible under government ownership of railroads, by using gross interest and dividends declared by railroads, instead of net interest and dividends actually paid, when he said that $464,140,210 of the return now paid annually to railroad capital could be saved under public ownership.

To any one who has even the dimmest appreciation of the situation, Mr. Thorne's statements are so preposterous as to be unworthy of even the scantest consideration. The unfortunate results from such grossly unreliable utterances rest in their effect upon the public mind which is largely uneducated along such lines and which generally accepts, without reservation, the statements of its public officials. While big business may need regulation and while the same may be true of the railroads, the crying need of the hour, judged by the public utterances of some government officials, is a keener appreciation on the part of such officials of their real responsibility to the public and the development of a moral fibre which will place them above the temptation of deliberately misleading the people.

Tariff Changes Summarized.

(From "Review of Reviews.")

"AN examination of practically all the changes in rates shows 938 reductions of duty, 86 increases, and 307 rates unchanged. This is a fair epitome of the changes just enacted by Congress. Fifty-one of the 86 increases fall in the chemical schedule. Most of the increases in this schedule affect balsams and essential oils used in the manufacture of perfumes, and were justified on the ground that perfumes into which they enter will enjoy the extraordinary high duty of 75 per cent, being a luxury containing alcohol. The other increases affect mostly articles classed as luxuries by the authors of the tariff, such as perfumes, gold and silver wares, diamonds, precious stones, pearls, manufactures of fur, some varieties of nuts from the tropics, spices, etc.

"Most of the rates left unchanged fall in the tobacco, spirits, chemical, agricultural and sundry schedules. Included in the latter are laces, embroideries and dress trimmings, which are regarded as luxuries and will continue to be dutiable at 60 per cent ad valorem.

"Much confusion will prevail from the loose and unscientific classification and wording of many provisions of the new law. These will find no solution except through the painful and costly settlement of the vexing questions by the courts.

"Space will not permit of discussing the ad-

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ministrative features of the law, which have gained added importance through the great extension of the ad valorem system of duties; the clauses dealing with further reductions of duty through reciprocity and with retaliatory duties against foreign discrimination, as well as the section relating to the income tax can not be discussed at present for the same reason.

"It is impossible to give an accurate estimate of the aggregate tariff reduction in terms of the probable falling off of revenue. The so-called estimates of the House and Senate committees are mere guesswork. Nor is it necessary to engage in this pastime in order to gain a proper appreciation of the character of the change. The test of the new tariff will lie in the extent to which increased foreign competition will be met by reduced prices at home granted to the consumer not at the expense of reduced wages, but through increased efficiency of self-sustaining industries."

Reason Is Again Returning.

(From the "Stockton (Cal.) Evening Mail.")

"IT is to be hoped that the day of mere prejudice has passed in California, and that hereafter all differences will be settled on an equitable basis. It must be remembered that the railroads have done a great deal for California and are entitled to reasonable interest on the capital they have invested. And it might be said parenthetically that reasonable interest can be secured without injustice to the shipper.

"Above all things it should be borne in mind that railroads are not great automatons existing independent of humanity, but simply an aggregation of business men who have pooled their funds for the common benefit. Many of the stockholders are people in ordinary circumstances; they are not all scheming millionaires, as many seem to think. For example, the Pennsylvania Railroad has 85,310 stockholders, or partners, and nearly 48 per cent of them are women. Not long ago this road distributed $7,408,082 dividends among its stockholders."

Safety on American Railways.

INTERESTING illustrations of the great degree of safety attending travel on American railways are given by a prominent newspaper in an article based on Interstate Commerce Commission figures which show that during the six year period, 1905-1911, only one passenger out of every 74,736 received injury of any kind and only one out of every 2,275,123 was killed.

Commenting upon these figures this paper says:

"A typical journey for all roads in the country is now 34 miles, and there are taken on the average 2,275,122 such journeys in safety to each journey which results fatally. If a man were to ride out these 2,275,122 safe journeys at two per day for each business day in the year, it would take him 3,792 years. To have begun in time to meet his death in 1914, he would have had to start in the year 1778 B. C., 458 years before Moses led the children of Israel through the Red Sea. By 750 B. C., when Romulus was "regulating" Remus by modern methods, the commuter would have ridden 21,000,000 miles, and have had 56,300,000 yet to do. When Phidias, in 460 B. C., was carving the Olympian Zeus, our wayfarer would have been but one-third of the way toward his death; and even in the year 890 A. D., when Alfred the Great was letting the griddle cakes burn, this traveler would have spent the equivalent of 207 years on the trains running at 30 miles an hour, and would have had 87 years more of actual travel to spend before meeting his fatal accident."

Use of Signals on Electric Roads.

THE "Electric Railway Journal" of New York takes a decided exception to the suggestion that electric railways could profit by the experience of the steam roads in the development and use of signals. It is asserted that the boot is entirely on the other leg and if there is one particular thing in which the electric roads are in advance of the steam roads, it is in the maintenance of signal facilities. To quote from the editor of the "Journal":

"The statement that electric railways are in position to, and should, profit by the experience of steam roads in the development and use of signaling systems has been made so often that it is commonly accepted as a matter of fact. There is one particular, however, in which steam railways can learn something from electric roads, and that is how best to maintain signaling facilities.

"It is almost a universal custom among electric railways which have signals to require their maintenance to be handled by the department which looks after the overhead and power facilities. This puts the signal maintenance in the hands of the men who are already handling electrical work and are familiar enough with it to be able to assimilate the added labor of caring for the applications of electricity which the signals represent.

"It is true that hardly any signals except such as are electrically operated are used on electric railways, but the fact remains, nevertheless, that these roads have shown a much better appreciation of the fitness of things in keeping all of their electrical facilities under the eye of an electrical department than steam roads have in trying to combine the maintenance of signals with maintenance of track. Steam roads have had for many years a department in charge of their telegraph and telephone facilities, which corresponds in a way to the overhead department on electric roads. But instead of trying to work out a combination of the telephone, telegraph and signal maintenance, which undoubtedly could have been made successful, they seem to be endeavoring to combine two kinds of labor which are distinctly incompatible.....

"Electric railways seem to have arrived first —and without straining—at the best solution of the difficult problem of how to maintain signals most economically. And in this respect, at least, steam roads have something to learn from electric railways— even though the latter may be indebted to the former for much of the pioneer work that has been done in connection with the engineering problems of signaling."

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The Situation in a Nut Shell.

(From the "Chicago Evening Post.")

"DURING July, 1913, the railroads of the United States received 4.4 per cent more money than they did in July, 1912.

"But it cost them 8.5 per cent per mile more to operate.

"These are the figures of the bureau of railway economics.

"Every bit of statistics seems to strengthen the reasonable demand of the roads that the increase of their expense due to governmental regulation be balanced at the other end of the scales. There must be some "give" in the structure somewhere, else the pressure will wreck it."

The Arbitration Award.

(From the Philadelphia News Bureau.)

"IT would be unwise to draw any hard and fast conclusions as to the superiority of the amended Federal arbitration act over its predecessor from the results of the first arbitration conducted under it. Certain initial difficulties of the present case it did solve, but there is as yet no assurance that similar difficulties will not recur and otherwise this arbitration resembles those that have gone before. The rule still holds that arbitration of wage controversies is predestined compromise in which one of the parties has much to gain and nothing to lose. An arbitration in which it shall be judged on a large scale, that the employes are not entitled to any increase of wages remains wholly a matter for the imagination.

"Nevertheless, certain points of accomplishment stand out in the findings of the board of which Seth Low and John H. Finley were the neutral members. The award properly confirms and emphasizes the principle enunciated by the Straus board in the case of the engineers that the compensation does not depend upon what the companies can afford or upon any particular level of rates, but solely upon what the work is worth. The dissenting opinion of the railroad members itself is an unintentional confirmation of this view, pointing out as it does that the claim of labor upon revenues is superior to that of dividends or even interest charges. There is nothing to indicate that this relation was ignored in the framing of the majority finding.

"Without attempting to say whether the railroads involved need an increase of freight rates, the board makes a clear exposition of the relation of wages and rates. It awards wages "that this board believes to be due at the present time," leaving to the Interstate Commerce Commission the consideration of freight rates in relation to expenditures for safety and efficiency. It affirms that "any policy which would make it impossible for the railroads to command this money (that necessary, to install safe equipment and adequate facilities) would be a profound misfortune to the whole nation," but it does not fall into the arms of either the carriers or the shippers by deciding that the nation is or is not pursuing such a policy. The board ventures only so far as to say that the lowest average level of freight rates in the world is not justly to be treated as a perpetual limitation upon what the men may receive.

"If the railroads are dissatisfied that the result is another increase in operating expenses, they may be thankful that the board has recognized the inevitableness of "over-time" and refused to penalize the carriers therefor; and that it has laid down the new principle that increased productivity of railroad plants has come from multiplication and development of facilities and "not to any measurable extent from the labor of conductors and trainmen." The fact that the board treats the present increase as the last of an old cycle of advances, instead of the first of a new cycle, is at least an intimation that railroad wages may have reached a level of rest under existing circumstances.

"The award is admirable in the restraint with which the board confines itself within the clearly defined lines of its authority. On the whole, it helps to clear the somewhat murky economic atmosphere in which the railroads are struggling to find their way."

Avoidable Accidents.

(From the "Great Western Employes' Magazine.")

"AS long a strains are operated on railroads, and, no doubt, in the far and distant future, when the ingenuity of man shall have solved the problem of aerial navigation and shall have conquered the laws of navigation to such an extent as to carry immense cargoes in the air, and so on through the various cycles of development to the end of time transportation will continue to exact its toll in injuries and deaths among the men engaged as carriers; for there is now, and always will be, a certain percentage of unavoidable accidents that are beyond the control of mortal man; and this fact may be stated as due to the inability of man to look with certainty into the future and thus safeguard himself against unavoidable accidents or guarantee the protection of his fellows therefrom.

"On the other hand there are a large number of accidents and personal injuries during this day and age—by far the greater proportion of all accidents and personal injuries that are known to be due to avoidable causes—accidents and personal injuries that are due to the failure of the man to keep his mind upon the tasks of the ever present moment, thus neglecting to safeguard himself against those foolhardy acts that he recognizes as dangerous.

"The question naturally arises, Why will men continue to tempt fate by taking unnecessary chances? Why will men gamble with death and injury in the performance of their daily work? Surely not because the railroad man is below the average in intelligence—that is not the reason—it is because he has not as yet recognized the sign of modern successful railroading—safety always—the sign that is nailed upon every section house and roadway building upon the system, or if he has recognized it, has failed to practice it.

"The man who takes chances, the man who gambles with fate loses, as all gamblers must—sometime—and if he is injured he regrets his foolhardy act until the day of his death, and if he is killed as the result of taking a chance he has unnecessarily blasted the hopes of his

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loved ones and brought the dark days of despair into his family circle.

"The safety movement is one of the most vital problems confronting the railroad men of this country; it is a means of preventing avoidable accidents; the unavoidable accidents cannot be controlled by the individual, but the accidents that are lurking behind all dangerous practices ready to pounce upon and destroy the victim of carelessness or thoughtlessness can be prevented.

"Safety Always—in case of doubt or uncertainty the safe course must be taken and no risks run is the keynote and the rule of success, and if each one of you will act accordingly, concentrating your thoughts upon your work and the ever present moment, keeping in mind the fact that eternal vigilance is the price of safety, if you will practice safety, talk safety, teach safety, you will not only secure safety for yourself and protection for your loved ones, which is important, but you will make the world a better place in which to live by securing the safety of others."

Big Business and Regulation.

(From "Engineering Record.")

DISCUSSSING "big business" in its relation to industrial prosperity before the American Mining Congress in Philadelphia, last week, Dr. Charles R. Van Hise, president of the University of Wisconsin, laid emphasis on two points in the trust problem which, while not new, deserve occasional emphasis, for one of them is an index to the inexorable laws of large industrial development, while the other points to a frame of mind which must be changed before there will be fair treatment of the whole problem. Referring to the mining industry, Dr. Van Hise pointed out that the competition enforced by the Sherman law has caused losses on zinc and lead in Missouri and Wisconsin mines as high as 45 to 50 per cent, while about 50 per cent of anthracite and bituminous coal is being left in the ground by the methods forced upon the operators by the competitive system. In other words, a law framed fundamentally to conserve the interests of the people is, by enforcing destructive competitive methods, nullifying this conservation, such as it is, by irreparable economic losses in other directions. As the New York "Times" said in discussing the address, "it is being learned at last that business makes laws which legislature cannot displace." The logic of Dr. Van Hise's remarks points plainly to regulation of monopoly in industry, just as to-day there is control of monopoly of public-service corporations. The other point in Dr. Van Hise's address to which reference is made needs no comment, especially after the attention given the subject in these columns last spring. It is pertinent to note, however, that it indicates the attitude of those upon whom we rely to do justice to the whole people. Referring to the rider in the sundry civil bill stipulating that no part of a $300,000 appropriation for enforcing the anti-trust laws should be used in prosecution of labor and farmers' unions he says: "I am willing to stand for enforcement of law when the law is enforced alike for all; but when somebody is picked out because he is in the front seat, or because it is good politics to attack him and allow 99 or 999 others to escape, I say that it is a profoundly immoral situation, and that is exactly the situation in this country."

Railroad Valuation.

(From "Railway and Locomotive Engineering.")

THE Interstate Commerce Commission has its work cut out for it, when it begins the task of the valuation of railroads. It is doomed to everlasting servitude, because it is enacted that it shall report to Congress at the beginning of each regular session until the task is done, and at the same time it shall report every change in values of every kind. It would be interesting to know by what kind of legislative juggling the job could be said to be done, while changes must necessarily continue to go on. Coming to the main question, however, which is really the only question: What is this valuation for? It is to find a supposed scientific basis for railroad rates—both passenger and freight. This cannot be done by the means proposed, for this contradiction is visible—if a passenger rate is rightly low in a crowded territory where prosperity flourishes, then a rate ought to be high where the population is sparse and poor and journeys necessarily long. Yet from the pocketbook point of view the crowded region could stand high rates better than the thin region.

When the enormous task of the Interstate Commerce Commission approaches completion and the Federal Government can prevail over all the jangling, confusing railroad laws of all the States, then it seems possible to foretell a general advance instead of a decline in rates, both passenger and freight; and for this reason: railroads must come to the point of providing out of earnings a sinking fund for reproduction and thus avoid everlasting dependence on the money market for bonds piled on bonds and obligations plastered on every decaying asset. The unwise agitation against railroads on one hand and the former indefensible independence of public service on the part of railroads on the other hand has reached its limit in this scheme. In the years that will elapse before the task approaches its first form of completion, the common sense of the railroad magnates must work out the idea of a sinking or replacement fund for property and "amortization" for the bonds; for indefinite extension of bonded indebtedness is impossible.

Who Owns the Railroads?

(From "San Francisco Post.").

WRITERS and speakers on the subject of the railroads' relation to the public are accustomed to draw a line between the two, as if the carriers were one thing and the public quite another and different thing. They err in the use of the word public, which is broader than a mere description of railroad patrons, for it includes not only the patrons, but the owners of the roads.

Twenty years ago, or even ten, the error would have been unimportant, as railroad securities at that time were held principally by institutions and a comparatively small number of large investors. This has been changed within the last

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few years and the books of some of the biggest systems in the country at the close of the fiscal year last June, showed the number of stockholders had increased 100 to 1,000 per cent, since the panic of 1907.

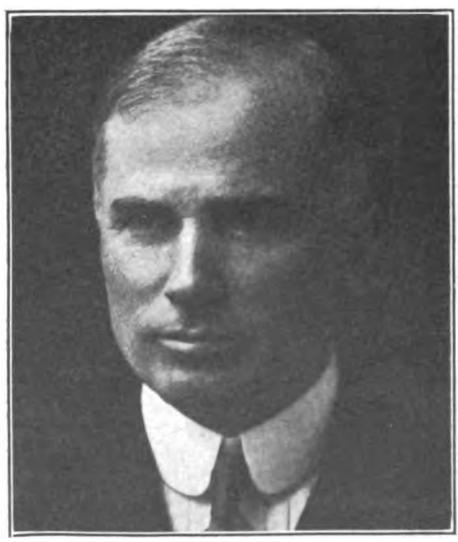
Railroad officials who regard themselves as quasi-public servants look upon this extension of the list of owners with great enthusiasm. They see in it an end of railway baiting, for, as the president of one great line said recently, "every new stockholder means another thinker among the population." It is not the thinking population that makes unfair and impossible demands upon the railroads, but a careless, irresponsible element, led on by the demagogue.

Nowadays, nearly all the public has a direct interest in the financial conditions of the railways, by stock ownership or otherwise. Every man who has his life insured or takes out a policy on his house and furniture shares this interest. Every man who keeps his money in a savings bank shares it. Almost every college and charitable institution in the country holds railway securities. These facts, once made known to everyone, will surely bring an end to the forward attacks on the railroads.

Should Railroad Freight Rates Be Increased?

PRESIDENT WILLARD, of the Baltimore and Ohio Railroad, was the principal speaker at a meeting of the members' council of the Merchants' Association of New York, held on October 29th. The meeting was attended by a large number of leading business men who were informed by Mr. Willard concerning the present railroad situation and the importance of a favorable outcome of the movement before the Interstate Commerce Commission for an increase in freight rates in order that the carriers may maintain their credit before investors and thus secure the necessary funds with which to provide additional facilities for properly handling the growing commerce of the country.

Some 200 members and guests were present. William C. Breed, chairman of the council presided, and explained its purposes. The guests were: Daniel Willard, president of the Baltimore and Ohio Railroad Co.; Charles F. Daly, vice-president of the New York Central Lines, and George M. Shriver, vice-president of the Baltimore & Ohio. Others at the speakers' table were William H. Marshall, president of the American Locomotive Co.; Irving T. Bush, president of the Bush Terminal Co.; E. H. Outerbridge, and Wm. Fellowes Morgan.



DANIEL WILLARD,
President of the Baltimore and Ohio Railroad.

Mr. Willard reviewed briefly the reasons which led to the application of the railroads for an increase in freight rates in 1910; also, the conclusions of the Commission in that connection and called particular attention to the fact that in its decision the Commission dwelt at considerable length upon the facts that the railroads should not only be maintained in a high state of efficiency and be prepared at all times to move in a satisfactory manner the commerce of the country, but is also recognized the fact that conditions should be such as to invite such continued investment in railway securities as might be necessary from time to time to enable the carriers to extend their lines, add to and improve their facilities, in order to keep pace with the growing traffic of the country. Further that the Commission expressed the belief that the growing business of the country, together with such improved methods as the railroads might introduce from time to time, would result in sufficient net revenue to enable them to maintain the properties and procure the necessary additional capital and while those who represented the carriers in the proceeding referred to did not share the hopeful views entertained by the Commission, they none the less accepted the situation as best they might, and now—three years later—they are about to present their case again for consideration, and this time such arguments as may be advanced in support of their contention will be based upon the actual results which have taken place during the intervening period, and will not depend, as in the previous case, so much upon estimates and apprehension for the future.

With respect to the reasons leading the railroads to file tariffs providing for a general five per cent increase, Mr. Willard said: "When the railroads sought to advance their rates in 1910, the new tariffs prepared for that purpose contemplated an increase ranging from 8 to 20 per cent, chiefly upon the so-called class rates; but, during the hearing, it was frequently suggested and urged with much force that even though the railroads did require additional revenue, they ought not to obtain it by advancing some rates in large amounts while leaving others undisturbed. It was pointed out that the existing rate structure had been generally in effect for a long time and was the result of competition

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over a long period of years, plus the influence also of a very considerable period of regulation by state and federal commissions.

"It was urged that the general business of the country had developed in harmony with the rate structure, and if the arrangement as a whole did not return sufficient revenue to fairly meet the requirements of the roads, it ought to be obtained by that method which would cause the least disturbance of existing commercial and industrial conditions, and it was in deference to this argument that the carrier in the present instance proposed an advance of five per cent on all articles. While it was felt that the sum of money that would be gained by such an increase would not be at all adequate to the necessities of the case, it was appreciated that the commercial adjustment of the territory involved was a very delicate affair, and it was finally decided to request a five per cent advance only, although all were of the opinion that a ten per cent increase was the least amount really adequate to meet the situation. It was thought that a five per cent advance of all rates, as proposed, would cause very little, if any, disturbance of existing commercial conditions, and if it should develop in the future that the amount so gained was not adequate, it was felt that the shippers and the public generally would be less opposed to a further increase, if necessary, after having had full opportunity to learn the effect of the smaller advance now proposed."

With regard to the lack of return to the railroads on the money invested in their properties in recent years, Mr. Willard said: "It is a matter of public record, as shown by the reports of the Interstate Commerce Commission, that during the fiscal years ended June 30, 1908, 1909, 1910 and 1911, the railroads of the United States increased their capital investment — not their capital securities, but their capital investment— something over $2,000,000,000; and it is also a matter of record that at the end of the fiscal year 1911, after paying operating expenses and taxes, the same railroads actually had about $8,700,000 less net from operation for return upon investment than was the case in 1907, although during the four-year period over $2,000,000,000 of new money had been put into the properties."

As demonstrating the particular condition at this time as typical of the situation in the east, Mr. Willard cited the fact that the case of the Baltimore and Ohio Company during the last three fiscal years, the net increase of property investment has been something over $55,000,000, but at the end of the last fiscal year, after paying operating expenses and taxes, the net earnings from operation applicable to return upon property investment, was actually $751,000 less than the sum so earned before the expenditure of the $55,000,000 mentioned.

Mr. Willard reviewed the increase in rates of pay of railroad labor, calling attention to the particularly high increase that had been granted the conductors and trainmen in 1910 and which had been in effect for a few months when the previous hearing was had; that since then there had been further increases granted the engineers and later the firemen through arbitration and that further demands of the conductors and trainmen are now before the arbitrators for adjudication; that the increases in rates of pay granted to all classes of labor on the Baltimore and Ohio since 1910, had added something over $4,000,000 to the cost of transportation on that road alone; that the price of coal and track ties had also materially advanced; taxes had increased and interest charges, due to increased capital investment, had been augmented $2,700,000.

He also pointed out that the freight rates in effect in 1910 had not in the aggregate been maintained and that a careful analysis shows that in the case of the Baltimore and Ohio the net result of adjustments already made means a substantial decrease in the return for the handling of business, and in summing up said that a conservative estimate was that the income of the Baltimore and Ohio during the last fiscal year was approximately $9,000,000 less than it would have been if the conditions had remained as they were at the beginning of the fiscal year 1910. "And the influences which have caused the changes mentioned are still at work," said Mr. Willard, "and it is reasonable to suppose that the same cause will produce the same effect."

As showing how some of these increased costs had been offset, Mr. Willard said: "It was urged at the former hearing that the railroads might very largely increase their net revenue by greater efficiency in operation. It was even suggested that the railroads in the country as a whole might in that way effect savings of as much as $1,000,000 per day. No railroad manager disputed the fact that greater efficiency was possible, and I suppose you as business men will admit that it is also possible to have more efficient methods in the operations of your own business, and the railroads are no exception in that respect.

"Speaking again for the Baltimore and Ohio, because I am familiar with its figures, I may say as a matter of information that during the past three years, this Company has made vigorous effort to increase its freight train load. That subject was given special consideration because it was felt that greater results could be achieved in that direction. The results obtained are reflected in the following figures: The average freight train load of the Baltimore and Ohio Company in 1910 was 442 tons; in 1913 it has been raised to 650 tons per train mile. The freight traffic moved by the Baltimore and Ohio Company in 1913, amounted to something over 14,000,000,000 ton miles. If the freight train load in 1913 had remained the same as it was in 1910, it would have required the running of over 9,000,000 more freight train miles in 1913 than were required on the higher train load basis, and assuming that the train mile so saved would have cost fifty cents, it is apparent that the direct savings accruing to that company, because of the increased train load, was something over $4,500,000.

"I feel that the Baltimore and Ohio Company has to some extent, at least, responded to the demands for greater efficiency, although I well understand that there is yet much that we can do in that direction. It should be remembered, however, that a very large sum of money was spent by that Company for larger cars and engines, and for other facilities, in order to accomplish the increased train load. I would not like to have it thought that the Baltimore and Ohio is an exception in this particular direction. I happen to know that the other companies have been giving as much thought to this same question, but not necessarily in the same direction.

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It was possible for the Baltimore and Ohio Company to increase its train load; some of the others, perhaps, had already exhausted the possibilities in that direction, and consequently were obliged to look in other directions for results."

Continuing, Mr. Willard said: "This thought, I think, should be clearly understood by all. This nation has been developed upon the economic principle that we shall raise our wheat and obtain our coal and ore at those places where each can be produced to the best advantage, and having procured our natural products from the places where each can be obtained most economically, we then depend upon our transportation system to take the wheat, the coal and the ore from where each is produced to where each is wanted either by the manufacturer, or by the ultimate consumer. The effect of this policy is suggested in one simple comparison: The last figure that I have seen concerning the railroads of the German Empire, show that the Prussian railroads handled in 1909—606 tons of freight one mile per capita, while in the United States during the same year, the number of tons handled by the railroads per capita, amounted to 2844, or nearly five times the amount of Prussia. This shows the very great use which is made by our people of its transportation system."

Regarding the future, Mr. Willard said: "At the present time, because of the reasons I have already mentioned, railroad development and extension, particularly in the eastern territory, is practically at a standstill, and personally, I am quite unable to see how it can be otherwise until something happens to increase the net earnings of these carriers. I do not believe we can expect to accomplish the relief necessary by reducing wages, or by reducing materially the number of men employed, or by economics generally. Something, of course, may be accomplished in that direction. I do not believe that the relief required will be gained through increased business, because many of the roads are already handling as much, if not more, business than can be done economically with their present facilities, and before any greatly increased volume can be handled, large expenditures must be made for additional facilities. The railroads could probably mark time for a while, if permitted to do so, and by enforced economies they would undoubtedly be able to maintain their present payments upon capital invested. In the meantime, however, the industrial capacity would very soon overtake, if it did not overwhelm, the capacity of the railroads, and then further commercial development of necessity would cease."

In concluding, Mr. Willard quoted from a public address of one of the distinguished members of the Interstate Commerce Commission, as follows: "We can provide by legislation the sort of cars which a railroad shall use and the rates which it shall impose, we cannot by legislation force one single dollar of private capital into railroad investment against its will."

Effects of Train Crew Legislation

WITHIN recent years numerous bills to regulate the number of men that railways must employ in their train crews, have been introduced in the state legislatures and in Congress. These measures are commonly known as "full crew" bills and in the main have been vigorously opposed by the railways as unnecessary and adding nothing to the efficiency of train operations or to the safety of those employed. Such measures have become laws in twenty states, namely, Arizona, Arkansas, California, Connecticut, Indiana, Maryland, Missouri, Nebraska, Maine, Nevada, New Jersey, New York, North Dakota, Ohio, Oregon, Pennsylvania, South Carolina, Texas, Washington and Wisconsin.

In order to set clearly the facts involved in this movement the Bureau of Railway Economics has recently published in bulletin form the results of an exhaustive investigation into such legislative tendencies, which it has published under the head of "The Arguments For and Against Train Crew Legislation." According to this bulletin, the first efforts to secure train crew legislation date back as far as 1902, but in the earlier years such efforts were almost inevitably defeated in the legislatures where they originated. In fact, in some recent instances, bills of this character have passed both houses of the legislature only to be vetoed by the governor as in the case of the full crew bill passed by the Massachusetts legislature in 1912, but vetoed by Governor Foss. While Governor Sulzer, of New York, within the past year, signed a full crew bill passed by the state legislature, his two immediate predecessors, Governors Hughes and Dix, vetoed similar bills. Governor Cruce, of Oklahoma, and Governor Harman, of Ohio, have also vetoed similar bills on the ground that general legislation requiring the railways to employ additional men on trains was undesirable.

In all these efforts to force the railways to employ additional men in train operations, the Brotherhood of Railway Trainmen has been the chief promoter. While the efforts of this organization have been successful in the states enumerated, a number of other state legislatures have still refused to pass such bills, among which are Colorado, Delaware, Florida, Georgia, Illinois, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota Mississippi, Montana, New Hampshire, New Mexico, North Carolina, South Dakota, Tennessee, Utah, Virginia, West Virginia and Wyoming.

The bulletin points out that in spite of organized labors' demand for additional men on the train crews, train operations, owing to various improvements, do not require nearly the effort or the risk which they did a few years ago. For example, coupling, which was then universally done by hand and proved extremely dangerous, is now cared for by automatic couplers. Hand brakes which were characteristic of the service a few years ago, have been replaced by air brakes.

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Modern signaling methods and devices have also tended to lessen the work of certain members of the train crews. To quote from the bulletin:

"These improvements in equipment have had a far-reaching effect upon the work of railway trainmen. The engineer of a train, whether passenger or freight, is now its real brakeman and, save under exceptional conditions, sets and releases the brakes from his cab on the engine. The 'brakemen,' so called, seldom have anything to do with the brakes except on detached cars during switching operations. Indeed, the term 'brakeman' is now a misnomer and is being displaced in railway usage by the term 'trainman.' The general substitution of the automatic coupler for the old link and pin has changed the character of the trainman's work in coupling and uncoupling and has very greatly diminished the hazard. Indeed, railway managers claim that, if the trainmen comply with their instructions, the hazard is eliminated entirely. Formerly, when coupling cars, the brakeman had to stand between the cars at the moment of their coming together in order to guide the link into its place. This entailed great risk of having his hand crushed, as well as of being thrown down and run over. Now, any necessary adjustment of the coupler can be made, and ought to be made, before the cars are put in motion to effect the coupling. Formerly, when uncoupling, the brakeman had to stand between the cars to remove the pin. Now, the pin that locks the coupling can be removed by a rod extending to the side of the car. Thus during neither the coupling nor the uncoupling does the trainman need to stand between the cars. These changes apply to both freight and passenger cars. How greatly they have reduced the hazard of coupling and uncoupling cars is indicated by the following table:

CASUALTIES TO TRAINMEN FROM COUPLING ACCIDENTS 1890 AND 1910.

Year.	Total Number of trainmen.	Total killed.	Total injured.	Number killed for each 10,000 trainmen.	Number injured for each 10,000 trainmen.
1890	153,235	265	6,073	17	400
1910	318,632	174	2,826	5	88

"In addition to the changes in their work directly resulting from the introduction of air-brakes and automatic couplers, there have been other modifications in the duties of trainmen which may be briefly noted. In the first place, the train crew as a rule no longer makes up and inspects the train at terminals. Switching crews now make up all trains at all important points of origin and, after they have been inspected by inspectors employed for that purpose, deliver them to the train crew ready for operation. The train crew has no more to do with the preparation for the run than to test the brakes. At the end of the run the train crew has only to deliver a train to the switching crews, which separate the cars for further disposition. It may also be noted that the work and responsibility of freight conductors en route has been lightened by the present practice whereunder a yard clerk furnishes them a statement of the cars in the train, with the respective destinations, from which the conductor checks off each car as it is set out and to which he adds other cars as they are picked up. Formerly, the conductors had to prepare these statements of the cars composing the trains.

"Again, the trainman's duties on passenger trains are less arduous because passenger trains are now almost universally heated with steam or hot water from the engine, and the trainman has only to regulate the degree of heat. The gradual displacement of the oil lamp by gas and electric lighting has relieved the trainman of many former duties.

"It is obvious that an increase in the number of men in a train crew means an increase in the operating expenses and, unless accompanied by a corresponding increase in the traffic per train or in rates, means a decrease in net operating revenues. The railways are reporting to the Special Committee on the Relation of Railway Operation to Legislation careful estimates of the additional expense resulting from state legislation already enacted. At the time this bulletin goes to press, that committee had not received estimates from some of the largest lines. However, the estimates that have been reported up to this time are given in the following table as a partial indication:

ESTIMATES OF ADDITIONAL ANNUAL EXPENSES TO THE RAILWAYS IN CERTAIN STATES, SO FAR AS REPORTED TO OCTOBER 1, 1913, RESULTING FROM TRAIN-CREW LAWS ENACTED BY THOSE STATES.

Arkansas	$179,085
California	66,297
Indiana	244,052
Maine	602
Maryland	96,921
Missouri (a general estimate)	500,000
Nebraska	24,367
New Jersey	381,851
New York	854,016
Ohio	139,592
Oregon (O., R. & N. Co. alone)	47,000
Pennsylvania	1,211,233
Washington	158,020
Total, reported to date	$3,903,042

"Considering the number of railways not represented in these estimates, and the importance of some of them, it is not improbable that the additional annual expense to the railroads in the above-named states on account of the train-crew laws enacted by these states will amount to $6,000,000.

"These estimates apply to the expense to the railroads on account of train-crew laws enacted in only a limited number of states. But the full effect can be seen only from estimates that apply on account of all such laws to all the railways in the United States. Four train-crew bills were introduced in Congress in 1909 and 1910. The Special Committee on the Relation of Railway Operation to Legislation made inquiries early in 1910 of all the railways as to the cost to them of complying with these federal bills, if enacted, as well as the expense they were being put to on account of state legislation then in force in thirteen states. The following table is a summary of the replies received:

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Estimate of 1910.	Number.	Mileage.	Amount of additional annual cost of compliance with full-crew bill.
Roads replying	166	205,547	$18,328,302.32
Estimated for other roads exclusive of Canadian and Mexican roads	126	23,254	1,953,336.00
Total	292	228,801	$20,281,638.32

"Another bill was introduced in Congress in 1912 which required that on each freight train containing twenty-five or more cars the crew shall consist of at least an engineer, a fireman, a conductor, and three brakemen, 'regardless of any modern equipment of automatic couplers and air-brakes.' This bill made no reference to passenger train crews. As a result of inquiries made of the railways by the Special Committee on Relations of Railway Operation to Legislation, in connection with this proposed federal law, the following compilation was made from the replies received from 143 operating companies:

ESTIMATES OF COST, IN 1912, OF TRAIN-CREW LAWS FURNISHED BY 143 OPERATING COMPANIES OPERATING 195,049 MILES.

Trains affected by state laws then in effect, per annum	*678,661
Additional trains affected by proposed federal law in states then having full-crew law, per annum	468,483
Trains affected by proposed law in states then having no full-crew law, per annum	3,211,056
Total trains affected by state laws and proposed Federal statute, per annum ..	4,358,200
Cost of compliance with state laws then in effect, per annum	*$1,797,589.94
Additional cost of compliance with proposed law in states then having full-crew law, per annum	1,342,237.17
Cost of compliance with proposed law in states then having no full-crew law, per annum	10,255,790.66
Total cost per annum of compliance with state laws and proposed statute	$13,395,617.77

*Does not include states where laws were passed subsequent to 1911.

"This tabulation shows that, according to the estimates of these 143 railways operating approximately 85 per cent of the steam railway mileage of the country, the additional cost to them of complying with the proposed federal bill in states where train-crew legislation is already in operation would amount to $1,342,237.17 per annum, or approximately 75 per cent of the cost of compliance with state laws already in effect. The estimated cost to them of compliance with the proposed federal act in states where there was no train-crew legislation was estimated to be $10,255,790 per annum; the estimated cost to them of compliance with the state laws then in effect was $1,797,589.94; making the total estimated expense of these 143 companies for federal and state legislation to be $13,395,617.

"It should not be overlooked that this expense is only a part of the total increase in operating expenses that has been caused by legislative requirements imposed upon railroad operations. Such legislation includes laws requiring eight-wheel cabooses in place of four-wheel cabooses, laws limiting the hours of service, requiring electric headlights, requiring the installation of improved safety appliances, regulating the stops of passenger trains, the speed of stock and freight trains, requiring the abolition of grade crossings, or the installation of additional watchmen at crossings, requiring double track, and providing for days off at the company's expense. Quite independent of the question of the defensibility of these laws is the fact that they add greatly to the expense of railway operation, which must eventually find expression in higher charges to the public than would otherwise be made.

"However, the fact that such train-crew legislation increases operating expenses is not a conclusive argument against it. The legislation, presumably, is intended to promote the interest of the public, and the question at issue is whether there are benefits directly or indirectly conferred on the public, and, if so, are they commensurate with the expense incurred.

"The official statistics of the Interstate Commerce Commission show that a large proportion of the accidents to trainmen are due to their being struck or run over by engine or car, falling from cars or engines, coming in contact with overhead or lateral obstructions, or that they occurred while getting on or off cars or engines. Of the total casualties in 1912, 50.4 per cent of those that were fatal and 34.1 per cent of those entailing injury were so caused.

"While it may be conceivable that an indirect connection might be shown between some of these accidents and a supposedly insufficient number of employes on the train, such a connection seems remote and cannot be established by any existing information. It does not seem clear that an increase in the number of employes would tend to reduce such accidents as these. Rather might it be assumed that an increase in the number of trainmen would tend to increase the number of such accidents. For example, if a third brakeman on freight trains were required to ride on the top of the train, it is fair to assume that there would be an increase in the number of brakemen killed and injured by falling from cars or coming in contact with lateral or overhead obstructions. An increase in the number of trainmen would not, of course, reduce the casualties resulting from fires, floods, landslides, or explosions.

"This conclusion seems to be well supported: An analysis of the causes of accidents to trainmen indicates little or no possibility that larger crews would reduce the risk of accident to trainmen.

"Turning to train accidents proper, the important causes are collisions and derailments. The Interstate Commerce Commission makes the following classification of the causes of derailments occurring in 1912:

	Number.
Derailments due to defects in roadway, etc.	1,877
Derailments due to defects of equipment ..	3,847
Derailments due to negligence of trainmen, signal men, etc.	423
Derailments due to unforeseen obstructions of track, etc.	412
Derailments due to malicious obstruction of track	75
Derailments due to miscellaneous causes ..	1,581
Total	8,215

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"Out of the 8,215 derailments reported, only 423, the number attributed to 'negligence of trainmen, signal men, etc.,' can be specifically connected with the train crews. The language used by the Commission does not imply that any of these derailments could be attributed to too few men in train crews. It rather implies that they were due to the 'negligence' of those who were so employed. It is, of course, conceivable that defects in equipment might have been noted and derailments avoided had the crew been larger; but this is an assumption which cannot be sustained by any evidence that has been found.

"As to collisions, the Interstate Commerce Commission said in its annual report for 1912:

"'The most disquieting and perplexing feature of the problem of accident prevention is the large proportion of train accidents caused by dereliction of duty by the employes involved. By far the greatest number of our serious train accidents are due to the failure of some responsible employe to perform an essential duty at a critical time. The seriousness of this problem is indicated by the fact that of the 81 accidents investigated up to September 1, 52, or more than 63 per cent of the whole number investigated, were caused by mistakes on the part of employes. These 52 accidents comprise 48 of the 49 collisions investigated and 4 of the 41 derailments. They caused the death of 248 persons and the injury of 1,309 persons. Of the 48 collisions caused by the errors of employes, 33 occurred on roads operated under the train-order system and 15 occurred under the block system. The most numerous failures were by trainmen or enginemen. These were disobedience of orders, disobedience of signals, failure to keep clear of superior trains, improper flagging, and failure to control speed at dangerous points. Such lapses were responsible for 41 of the accidents investigated.'

"During the ten years, 1902-1912, the Interstate Commerce Commission investigated directly through its own agents 1,431 train accidents, which were responsible for the death of 3,447 persons, or about one third of the total number killed in such accidents during this period, and the injury of 18,008 persons, or about one eighth of the total number injured in such accidents during this period.

"The following tabulation shows the causes to which the Commission attributed these 1,431 train accidents:

CAUSES OF PRINCIPAL TRAIN ACCIDENTS ON RAILWAYS OF UNITED STATES, FISCAL YEARS 1902 TO 1912, INCLUSIVE.

	Number.	
Fault of train crew other than brakemen:		
Disobedience of rules or orders	63	
Misread orders	69	
Ran past signal	66	
Ran past meeting point	36	
Carelessness	95	
Forgetfulness	49	
Asleep	40	
Intoxication	5	
Failure to follow schedule	16	
Excessive speed	137	
Other errors	1	
Total		577
Fault of brakemen:		
Failure to set brakes	40	
Failure to flag	72	
Improper flagging	26	
Other errors	5	
Total		143
Fault of dispatchers, operators, etc.:		
Wrong orders	89	
Failure to deliver orders	67	
Signal incorrectly set	60	
Switch misplaced	59	
Other errors	2	
Total		277
Fault of other employes		18
Mechanical defects:		
Defective or weakened track	59	
Defective or weakened equipment	96	
Failure of air-brakes	30	
Failure of block signals	4	
Total		189
Parting of trains		11
Hostile weather conditions		68
Malicious interference with track or equipment		41
Miscellaneous causes		35
Causes uncertain or unknown		72
Total		1,431

"It is the unanimous opinion of railway operating officers that an increase in the number of men normally employed on trains will tend to increase the number of accidents not only to individual employes, but to the trains themselves. It will either result in a dangerous division of responsibility or else in an idle and unnecessary man becoming a hindrance to other employes in the performance of their duties. Replies received in 1909 by the Special Committee on the Relation of Railway Legislation to Operation from railways operating in states where train-crew legislation had been passed were unanimous in expressing the view that no duties were performed by the extra man on a train that could not be performed by the other employes. It was, moreover, the unanimous opinion that the legislation did not and would not increase safety, while many expressed the opinion that it was bound to have the opposite effect.

"There is another side to this question of the effect of full train-crew laws on safety. If it be admitted that train-crew legislation is unnecessary, it must then be granted that such legislation not only will not promote safety, but may by reason of its expense be an actual obstruction in the way of the development of greater safety of the railways of the country. The Interstate Commerce Commission has frequently called attention to the need for physical improvements. In its annual report for 1912 it directs attention to conditions of track and equipment that lead to derailments, and recommends the universal installation of the block system as a means of reducing collisions. The improvement of track and equipment and the installation of block-signal systems and other physical improvements can be made only by the investment of a large amount of capital. As

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has been shown, the railways estimate that train-crew legislation applying throughout the country would increase railway expenses to the extent of from $13,000,000 to $20,000,000 per year. The former amount is the annual interest at 5 per cent on $260,000,000; the latter on $400,000,000. It has been estimated by the Special Committee on the Relation of Railway Operation to Legislation that for $260,000,000 block-signal systems could be installed on all railway mileage of the United States not now so equipped—in other words, train-crew legislation would cost the railroads at least as much as the universal installation of the block-signal system.

"Railway officers contend that net earnings are insufficient even now to enable them to make these needed physical improvements. On this point the Block Signal and Train Control Board created by Congress to investigate appliances for the promotion of safety of railroad operation, in its final report to the Interstate Commerce Commission, on June 29, 1912, said:

"'In discussing this subject it may be assumed at the outset that railroad officers and employes are as anxious to do everything in their power to promote safety as the public is to have safeguards provided, and that railroad officials and employes are not immune to the horrors of a terrible wreck. If all think alike and have the same desire, why are not better safeguards provided? The general answer for most railroads is the expense involved. Money is not available with which to provide and install the apparatus. It is needed elsewhere.'"

The Valuation of Railroads

By GRIDLEY BEDE.

A BEAM of light traveling at lightning speed would exhaust the lives of many generations before it would reach a certain remote star. From our own little limited scope of life such a journey seems everlasting.

A similar journey, interminable, indefinable and almost unimaginable is set before the Interstate Commerce Commission by the Act of March 1, 1913, ordering it to make a "valuation of the physical property of common carriers," the railroads.

Until the task is carefully considered and the law examined, this sounds almost as simple as starting a flash to fly across the spaces; for surely "physical property" means such things as have weight and shape and size, and therefore a list of it all could be quickly prepared.

On the contrary, it will take years to complete Ten million dollars is estimated as the cost, and when it is done, then instantly will the results change, and changes in the results will continue as long as "common carriers" continue to operate.

To aid in making a seemingly simple task measure up correctly in the mind of the man on the street, some few details of the act must be understood. The Interstate Commerce Commission has this to do:

1. It shall make an inventory of the property of every common carrier in detail.

2. It shall ascertain the value of all the property owned or used by any common carrier.

3. It shall report (a) the original cost to date of all such property; (b) the cost of reproduction, less depreciation.

4. It shall report separately other values and elements of value of such property. (This is the indefinable part of its task.)

5. It shall report (a) the original cost of all lands, rights of way, and terminals; (b) the present value of all such; (c) the present estimated and the past cost of condemnation.

6. It shall report on (a) the history and organization of every railroad ever operated in the United States, whether now part of a system or independent; (b) on the stocks, bonds and other securities, increased or decreased since the beginning of our railroads; (c) on all banking, syndicating, and other financial arrangements involved in marketing stocks, bonds, etc.; (d) on the net and gross earning, and also the expenditures of all railroads.

7. It shall report (a) all gifts of lands or aid of any kind to railroads by the Government of the United States, by any state, county, municipality, individual, etc.; (b) the price realized on sales of such gifts or aid; (c) all concessions made in return for such gifts or aid.

8. It shall show the value of every common carrier as a whole, and then in detail, within each state or territory it enters or traverses.

9. It shall report to Congress at the beginning of each regular session until the task is done.

10. It shall thereafter report every change in values of every kind. (This is the interminable part of its task.)

When it is through, the valuation of any railroad shall be a "tentative" valuation against which the "common carrier" can protest. When this is ended, then the final value (which is subject to change indefinitely and forever and therefore never "final"), "shall be prima facie evidence of the value of the property."

The reader needs only a few suggestions to make him understand that under item No. 4 we shall never come to agreement; for the cost of a railroad and the value of a railroad are two utterly different things. A perfect mile of railroad might be constructed in the Mojave desert. Its cost would be great, but its value nothing; for it would do nothing for the good of anybody. Some very imperfect miles of road exist here and there but their value is immense; for they possibly give value to every other mile as far as the Pacific Coast. They are essential links. Some holiday resort railroads fluctuate in value just as the thermometer goes up or down. They cost for construction, but their value exists chiefly in the summer time.

Note this variation from all the above. The cost of a railroad between two great cities is less if it can make a bee-line or avoid tunnels; but the less it costs and the shorter the distance it runs, the greater is its value.

These illustrations give an idea of what a task is "intangible" valuation.

Who shall decide whether Iowa railroads have gone down in value and how much by the decline in population in the last decade?

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Michigan railroads were stated by Michigan officials to have $35,814,043 worth of this foggy something belonging to them in 1900; but Wisconsin, on the other hand, credits no intangible value at all to its railroads.

The state of Washington credited the Northern Pacific with one per cent intangible value above cost of reproduction of the railroad, but New Jersey adds 20 per cent or $75,841,600 and then deducts 20 per cent for depreciation (which is an absolutely unhaltable process) and so there you are: the value of New Jersey railroads is just what it cost to bring them into existence.

Minnesota sees no "intangible" values; neither did Massachusetts when it was trying to get at the value of the New Haven road.

Now let us see how the complications multiply beyond all the above. The value at which a railroad should be marked if in the market for purchase is its earning power; just as the value of a horse lies in what it can earn and not in the direction it may be headed.

But two lines of equal cost would not necessarily have equal value, for an old "going" line has more value than a new one just developing its territory.

Then into the puzzle comes the value of strategic position, for instance, the stretch of rails between the Harlem Bridge and the Grand Central Depot, over which the New Haven must pass. The privilege of passing over this strategic stretch is figured away up in the millions.

Piling a little more on the problem: The depreciation question has the railroads themselves in doubt, and how can a remote commission decide this for 40 per cent of all the railroad trackage of the world? Some railroads wear out quicker than others. Ties are always decaying. Kansas ties are only valued at 56 per cent of their cost. The far-South tie in its moisture will not live as long as the Arizona tie in its dryness, but on the other hand, Southern tracks will not have to be constantly moved or lifted to keep up with the encroaching sands. Every mortal device grows old; some things on a railroad age out and some wear out, but when they are out they are out and unless replaced is no railroad.

Depreciation must everlastingly be emphasized, for it is the one factor that is always active; and efficiency consists in supplying material for it to gnaw away, but whether it is 20 per cent or 10 per cent or 5 per cent it is only possible to tell after replacement; for one year may wear hard and another lightly; for instance, the Baltimore and Ohio had $4,000,000 worth of equipment loss in the floods of last spring.

Now going one step farther back—to construction. It is self-evident that such a road as the Union Pacific, from Omaha westward across Nebraska, was little more than a matter of laying ties on a gradual rise; but the way across the Sierra Mountains in California was one to test men's every device and capacity. All these differences this great task involves.

A thousand other complications could be ranged in rows and then not exhaust the list. But passing back to the very first item in railroad building—the right of way—it must be realized that in many cases the right of way acreage costs two and one fourth to two and one half times as much as the value of the land it touches. But to duplicate now at two and one fourth times present values would be prohibitive, and yet such possibilities of reproduction have to be reported on; which is reporting on something purely imaginative and quite useless except for technical argument and increasing technical employment.

The last question should really be first: What is this valuation for? It is to find a supposed scientific basis for railroad rates—both passenger and freight. This cannot be done by the means proposed, for this contradiction is visible—if a passenger rate is rightly low in a crowded territory where prosperity flourishes, then a rate ought to be high where the population is sparse and poor and journeys necessarily long. Yet from the pocketbook point of view the crowded region could stand high rates better than the thin region.

When the enormous task of the Interstate Commerce Commission approaches completion and the Federal Government can prevail over all the jangling, confusing railroad laws of all the states, then it seems possible to foretell a general advance instead of a decline in rates, both passenger and freight; and for this reason: railroads must come to the point of providing out of earnings a sinking fund for reproduction and thus avoid everlasting dependence on the money market for bonds piled on bonds and obligations plastered on every decaying asset. The unwise agitation against railroads on one hand and the former indefensible independence of public service on the part of railroads on the other hand has reached its limit in this scheme. In the years that will elapse before the task approaches is first form of completion, the common sense of the railroad magnates must work out the idea of a sinking or replacement fund for property and "amortization" for the bonds; for indefinite and tension of bonded indebtedness is impossible.

The Nobility of Good Workmanship

IN a recent address delivered to apprentice boys at the Frisco's shops at Springfield, Mo., George M. Bassford, chief engineer of the railroad department of Joseph T. Ryerson and Son has the following to say, in part, regarding good workmanship:

"Everybody depends upon good workmanship. Good workmanship is a part of nobility. Poor workmanship is evidence of moral degeneracy. There is nothing the industrial world needs as much as it needs good workmen, and yet it is difficult to find them. Far too many good men must be employed to discover and correct the defective work of the inefficient and the unskilled. The greatest curse of industry to-day is its dead load of those who lack the desire to take pains with the work of their hands and brains. A sloven could become a genius if he would take pains with his work. The safety of thousands of steamers and trains to-day lies not alone in good workmanship, but also in the consistent elimination of poor workmanship. This should not be true and

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would not if we had enough of such apprenticeships as this and if enough of our railroads had officials inspired as are those of the 'Frisco' to place before their recruits the opportunities which you enjoy.

"You are the most fortunate boys in the country. You and a few others on railroads providing up-to-date apprenticeship. Do you appreciate this fact? See what is being done for you? You are ingrates if you do not sit up nights to show your officers that they are wise in spending stockholders' money so lavishly to help you. What are you doing about it to indicate to them that the scheme is worth while and that you are worth so much of their thought and trouble? It costs the Government some money to train a high officer in the navy. Think for a moment of how Perry, Farragut, Dewey and others proved that it was worth while to train men. It is necessary to train naval men, and everybody understands this fact. I have for years thought it even more important to train apprentices than naval men, but too few people have been broad-minded and far-sighted enough to provide apprentice opportunities. You ought to be thankful that your lot has fallen here under such leading officials as good fortune and good judgment has brought to the Frisco. If you do your part you will some day see and understand this if, perhaps, you do not understand and appreciate it already.

"Now for your own sakes and for the satisfaction that it will bring you, I implore you to make a job of your side of this bargain. You are receiving a liberal education, such as no school or college can give you, and are not only paid for getting it, but are being provided for in this organization while obtaining it and after it is attained. The slang phrase, 'go to it,' is the word for you. Then remember what Franklin said, 'Plough deep while sluggards sleep,' and the immortal words of Longfellow:

"'The heights by great men reached and kept,
Were not attained by sudden flight;
But they, while their companions slept,
Were toiling upwards in the night.'

"Franklin was the son of a poor man. He learned the printer's trade and in a long life of extraordinary usefulness he proved the wisdom of another of his undying lines, 'He that hath a trade, hath an estate.' Bear this in mind when by mere temporary increase of wages you may be tempted to quit for a better paying job before your apprenticeship is completed.

"Speaking of sons, let us consider three kinds of sons.

"Sons of Rich Men—These have school advantages, also college and automobiles, boats, with lots of time to use them. Do not envy these. With almost no exceptions they have no real pleasures. They give the world nothing. They are helpless hangers-on, parasites, living off the lives and work of others. They are tired of everything and the world tires of them. It is difficult to be charitable toward them.

"Sons of Comfortable Men—These really have some chance and they form a respectable class. They may go to college, and if they do, they go with a purpose. They work. They take important places and feel the responsibilities of life. They are usually worthy citizens.

"Sons of Workingmen—These are sons of the class that has made this glorious country, the class that has done and will do the big deeds of the world, the class that makes everything we need, the class that makes possible the greatest of all the facilities we need—transportation. This is the class that knows the best happiness of life, the pleasure of doing, and doing well, a necessary piece of work for the welfare of mankind—for work alone is noble. I congratulate you upon being of this class, the class that the world cannot get along without and the class we are most proud of—real Americans.

"It is not conceivable that there is any higher attainment than to fulfill this specification:

"First—Be a man.

"Second—Be a workman.

"Third—Be a good workman.

"Fourth—Be an intelligent one.

"Fifth—Climb as high as you are fitted to climb.

"Sixth—By good work fit yourself for promotion, and no force can keep you down, always remembering that advancement may as well mean improvement in one's present work as in official promotion.

"You will hear men talk of the good ol dtimes—past—never to come again. You will hear them say there is no chance for boys to-day. Do not forget that there is something more permanent even than the mountain—progressive improvement. These times are better than any that are past. They present opportunities better and more promising than ever were presented before—if we know how to use them.

"For some years I have tried to state in a few words the object of modern apprenticeship as I understand it. This seems to represent the idea as well as I can state it now—

"To recruit the ranks of mechanics with efficient, capable, thoughtful young men, prepared to establish themselves and contribute to the success and happiness of mankind. To produce competent workmen who know what they are doing, why they are doing it, and who appreciates the place of their product in a completed whole. To supply capable, constructive, self-reliant citizens who will understand that good workmanship produced without waste is of itself and for its own sake sufficient inspiration for the best endeavors of which a man is capable.

"The purpose is not to train leaders, but followers; not presidents, but workmen, who will appreciate and profit by their advantages and will keenly feel the responsibility of assisting in the training of others. We need to build up the organization with skilled thinking workmen, who recognize their obligations to their fellow-workmen, their employers, the world and themselves.

"I may be talking to the future president of this road or of the United States. Some one has said that of the forty-seven railroads having offices in New York City, forty-six have presidents who have risen from the ranks. These men by reason of their knowledge, ability and forcefulness, have risen to the leadership of vast properties. It is, therefore, stated that any employe of a large organization may become its official head. It is also said to be possible for any native-born citizen of the United States to become president of the nation. This possibility for advancement in a country devoid of hereditary class distinction is both a blessing and a menace. It is a blessing as a democratic principle and a menace as a cause of awakening ambitions unsupported by ability and preparatory achievement. Men become presidents after long preparations as progressive-

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ly successful subordinates. They advance because they are good workmen or they do not advance at all. If we make it our business to be good workmen and find and fill the place for which we are fitted, we shall have no complaint to make of an ungrateful world.

"It is unfortunate that anyone is saying that apprenticeship is necessary in order to supply foremen, superintendents and higher officials. Considered from the standpoint of numbers alone, this is a mistake. Remember that the best possible officers can do little with multitudes of incompetent workmen. Be a good workman and let the leadership come to those who can command it.

"Climb—yes, as high as you can, but remember, the safest climbers who continue to rise are those who step on every round of the ladder as they go. Those who climb and help others up have support for their positions, whereas those who climb alone or try to pull others down stand alone in great danger of a fall."

Railway Borrowing Since 1900

By SLASON THOMPSON.
Director of Bureau of Railway News and Statistics.

NET funded debt on railways of the United States increased 32.3 per cent between 1904 and 1911. Simultaneously interest paid on funded debt expanded 37.8 per cent. That portion of the debt paying three to four per cent interest was cut to less than half, falling 56.6 per cent; bonds paying four to five per cent almost trebled, increasing 174.8 per cent, and five to six per cent bonds more than doubled, advancing 134.1 per cent.

Such a readjustment, traceable in figures of the Interstate Commerce Commission, reflects strikingly that steady advance in cost of capital, as one item of the cost of living, which today has left the railways with a heavier burden of financing than they have ever before borne. To approximate it one must revert to the early 90's, preceding the great era of receiverships.

What exactly represents the excess demanded in fixed charges to carry a given portion of the railroad funded debt as compared with ten years ago is impossible to determine. Accessible figures presenting par value of bonds and nominal interest rates ignore the all-important item of discount. What a borrower pays for his money, as for any other commodity, depends as much on what is received as on what is given. Increase of discount offered as allurement to capital, by contracting the money actually reaching the treasury, heightens necessarily the real cost to the borrower. Yet while this ignoring of actual prices received for bonds making up the railway funded debt thus creates a serious error, its effect is sure. In a rising money market, or conversely a falling bond market, such as that since 1900, disregard of increasing discounts must understate the real advance in cost. So figures based on par value and nominal interest rates well may be too conservative.

Such considerations as this are essential in contemplating the analysis of railway funded debt (Table 1) compiled from reports of the Interstate Commerce Commission:

TABLE I.
COMPARATIVE SUMMARY OF PERCENTAGES, SHOWING PORTION OF TOTAL RAILWAY FUNDED DEBT PAYING STATED INTEREST RATES, 1900-1911

Per Cent Paid.....	Nothing	Under 2	2 to 3	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8	8 to 9	9 to 10	10 and Above
1900	6.78	4.21	4.84	22.95	32.82	15.69	8.68	3.68	.18	.06	.11
1901	6.23	2.37	7.19	25.16	**26.72**	21.09	7.28	3.70	.21	.01	.04
1902	4.89	1.75	5.44	31.61	29.39	14.04	9.69	2.91	.21	.02	.05
1903	4.33	1.37	4.79	33.47	32.96	14.83	5.95	1.79	.37	.10	.04
1904	4.49	1.23	3.67	**38.45**	32.03	12.00	6.75	1.37	.01	.....	.....
1905	6.36	1.30	1.11	24.73	44.27	13.98	6.53	1.71	.01	.....	.....
1906	3.82	.33	.93	23.53	48.85	14.95	5.85	1.74	(1)	.....	.....
1907	3.76	.75	.82	17.36	54.40	16.41	5.00	1.50	(1)	.....	.....
1908	7.24	.28	.07	12.92	50.08	19.34	8.17	1.89	.01	.....	.....
1909	7.57	.19	.06	12.24	51.45	18.74	7.92	1.82	.01	.....	.....
1910	7.94	.01	.18	11.48	53.87	18.16	6.84	1.50	.02	.....	.....
1911	1.56	.11	.06	**11.38**	**60.08**	19.18	6.41	1.21	.01	.....	.....

(1) Less than .01 per cent.

Two features stand out in this comparison: First, the decline in bonds paying less than four per cent; second, the corresponding advance in those paying four to five and five to six per cent. This growth between four and six per cent has taken place almost wholly at the expense of bonds paying under four per cent. Furthermore, the bulk of this shift has occurred since 1904, shown to be the turning point marking inception of the present rise in capital costs. In 1904, bonds paying two to three per cent played only a slightly smaller part than in 1900. Those paying three to four reached their apex at 38.45 per cent. Those paying four to five were near the lowest and those paying five to six were at the lowest for the entire period.

From 1904, however, there is a steady climb. By 1911 the two to three per cent bond has almost disappeared and the three to four per cents constitute only one-ninth of the total, where in 1904 they had been over one-third. The four to fives, beginning an almost unbroken rise, climb by 1911 to 60.08 per cent of the entire railway funded debt! In seven years five to six per cent money in railways has climbed from $804,000,000 to $1,883,000,000; four to five per cent money has climbed from $2,146,000,000 to $5,897,000,000 and three to four per cent money has fallen from $2,576,000,000 to $1,117,000,000!

Striking as is this showing, it does not ade-

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quately portray the change. As bonds generally are issued for long periods, the railways to-day are paying interest on debt incurred, in large part, during more propitious years, an advantage which operates to offset largely the higher rates paid on newer money and to hold down the average, as analyzed above. To gain an idea of what has taken place in new capital alone, a compilation has been made of listings of railway bonds on the New York Stock Exchange from 1900 to 1912, analyzing these by rate of interest. This is given below in Table II.

TABLE II.
COMPARATIVE ANALYSIS OF BONDS LISTED ON N. Y. STOCK EXCHANGE BY RATE OF INTEREST BORNE. (000 OMITTED)

	3s	3½s	4s	% at 4 or Under	4½s	5s	6s	% over 4 %	Total	Short Term Notes*
1900....	$43,640	$ 80,227	$107,800	86.12	$ 5,263	$ 31,673	$ 400	13.88	$269,003	.....
1901....	14,555	41,515	551,226	91.05	18,602	25,461	15,647	8.95	667,006	.....
1902....	3,803	59,253	302,670	84.15	39,500	25,147	4,239	15.85	434,612	.....
1903....	.....	109,448	114,924	82.86	3,209	42,564	614	17.14	270,759	.....
1904....	8,148	16,822	251,447	80.66	24,757	40,904	616	19.34	342,694	.....
1905....	.....	124,979	391,007	**95.80**	7,607	14,938	53	**4.20**	538,584	.....
1906....	1,650	17,608	243,814	85.99	31,627	10,942	257	14.01	305,898	.....
1907....	.....	10,324	217,521	85.01	11,000	29,042	105	14.99	267,992	$265,000
1908....	28	53,406	287,174	67.29	33,346	58,431	73,774	32.71	506,160	274,000
1909....	8,000	28,250	508,685	70.72	94,863	122,737	7,966	29.28	770,501	53,000
1910....	.....	.....	225,845	50.84	104,944	83,374	17,077	49.16	‡444,168	124,000
1911....	.....	.....	246,344	82.66	8,313	23,273	73	17.34	†298,004	255,000
1912....	.....	.....	72,366	**34.50**	77,173	57,008	3,206	**65.50**	209,753	279,000

*Notes not included in compilation of listings. Mostly 5 and 6% interest borne.
‡Includes $12,927,500 at 7%. †Includes $20,000,000 at 4¼%.

Interwoven with these figures may be read the serial story of railway fortune and adversity. Most striking at first glance is the conspicuous absence of three and 3½ per cent money since 1909. Of equal significance is the fitful rise of bonds carrying above four per cent, from 13.88 per cent of the total in 1900 to 65.50 per cent in 1912. Here, too, the turning point is seen to be the years just preceding that rise in money which culminated in the financial disturbance of 1907.

Equally interesting is the accurate reflection of a constant striving after necessary capital to finance improvements and betterments demanded by growing traffic; the prompt responses to favorable money conditions; the repeated hauling in of sails under lowering tempests.

Listing of bonds in 1900 reflected only partially the gradual revival of confidence among investors. They had been exceeded in several previous years, and securities for new extensions and improvements were few because of the pre-election depression. Both 1900 and 1901 were years of refunding former temporary financing, but in the later year, with the advent of the great era of consolidations, listing reached the largest aggregate in the history of the exchange. Railroad bonds alone totalled $667,000,000. Heavy listings continued into 1902, largely for control of other properties, but there was also a free use of bonds for improvements and additions, furthered by an easing of money in early 1903.

A financial depression in the latter part of that year caused a slump to $271,000,000 in bond listings, and railways again resorted to temporary financing to cover immediate needs. So it was that 1904 again was a year of refunding short term notes, the Lake Shore alone issuing $40,000,000 to replace notes sold in 1903. The following year, 1905, was another oasis in the desert. Prompt to seize the advantage of cheaper money, large issues were put out on a wave of improvements and extensions to road, and the total, at $538,000,000, was exceeded only by the record year 1901.

With sails thus unfurled, many roads in 1906 were on the point of selling large issues for needed expansion of facilities, when development of a strain in the money market rendered it impossible to float more than a small part, and the voyage again halted. Despite extraordinary growth in general business and increasing dividends which made 1906 a stockholder's year, bond listings, at $306,000,000 were below either of the two previous years.

New issues for railroad extensions, additions and betterments in 1907 would have exceeded any previous year in history had sailing been favorable. Acute disturbance of confidence sent money soaring in the closing months rates, touching sixteen per cent for 90-day loans in November, became absolutely prohibitive. Under the storm clouds the sails were tightly reefed. Bond listings fell to the bottom for the period under review; temporary financing through short term notes vaulted and then fell flat, in the second half year even these high interest bearing issues being cut off.

After-effects of this disastrous year were seen in 1908. Though temporary financing continued for a time, gradual restoration of confidence and relaxing rates were bound to encourage numerous loans which should have appeared earlier. So 1908 again was largely a year of providing previous financing. Hardly a short term note was seen in the second half year, but bond listings jumped to $506,000,000 against $268,000,000 in 1907, the largest, excepting one year, since 1901. Notable as had been recent years for new railway construction, financed before the depression, much of the 1908 listings was for further development of facilities.

Remarkable ease of flotations in the late months continued, and the listings for 1909 were a striking proof of the credit revival which again carried the railways under bulging sails. Their bonds at $770,000,000, touched the highest mark ever recorded. Rail securities embodied the bulk of record listings for all classes of stocks and bonds. All capital transactions that restored confidence could inspire contributed their share: Money was raised for new undertakings, for additions, for funding floating debt, for refunding maturing bonds, for retirement of short term notes, for exchange of convertible

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bonds into stock, and for completion of consolidations.

But after this the deluge. Under slackening commercial activity new bond listings again shrank, in 1910 the railway total not only falling $336,000,000 under 1909, but under 1908, 1905 and 1901 as well. Some needs were financed early, while money still was favorable, by sale of new stock; but bonds were at the foot of a hard-scrabble. The 1911 total at $298,000,000 was far below the two previous years, though early issues for improvements, additions and extensions were on a liberal scale. Not only was the total lowest with two exceptions since 1900, but New Capital included was only 70 per cent of the total for 1910, and less than 60 per cent of 1909! Disturbed confidence again reduced permanent issues of all kinds; short term notes again became conspicuous.

Thus is ushered in 1912, most deplorable for railway credit of the thirteen-year period. Despite remarkable general trade, bonds of all classes, though above 1911, were far below 1910 and 1909. Railway bonds, unlike other classes, failed to gain even over 1911. Shrinking $90,000,000 they reached the lowest ebb in the entire thirteen years, $58,000,000 under even the disastrous panic year 1907! And of this total 75 per cent was issued by six roads! Whence the discrimination? Falling rates, harassing legislation, labor demands must be considered by investors!

Short term notes, the putting off until to-morrow of what cannot be done to-day, are the danger signals of railway borrowing. Only in recent years has the putting off been persistent enough to warrant detailed recording, yet from $265,000,000 and $274,000,000 in 1907 and 1908, after a fall to $53,000,000 in the happy year 1909, they have climbed to $124,000,000 in 1910; to $255,000,000 in 1911; to $279,000,000 in 1912, the largest volume of makeshift financing on record!

That is not all. In 1912 this stop-gap financing, paying mostly five and six per cent, exceeded by $70,000,000 the actual listings of railroad bonds!

Add these $279,000,000 of notes to bonds, and not 65 per cent but almost 85 per cent of railway borrowing in 1912 was on poorer than a four per cent credit basis!

Temporary financing entails refunding, whether or no there dawns the hoped-for day of better money markets. In the past, successive refunding eras, it is seen, have been on ever higher interest levels.

Railways of the United States need nearly $1,500,000,000 annually to cope efficiently with traffic which grows eight per cent a year. In thirteen years, five have been characterized by liberal bond issues for improvement and extension!

In 1912, with 11,000 more miles of line, our carriers listed $561,000,000 fewer bonds than in 1909. With 20,000 more miles of line, they listed $58,000,000 fewer bonds than in the panic year 1907!

Railroad stocks, bonds and notes marketed in 1912 for New Capital, at $500,000,000, fell almost $1,000,000,000 below requirements. Their stocks and bonds were nineteen per cent of the total of all classes marketed, against 62 per cent ten years ago! For the money that investors are free to deny an industry marked for restriction, the railroad borrower must pay, like others, $50,000 or $60,000 yearly on the million, where $40,000 would suffice ten years ago.

Highest interest rates; lowest bond offerings; highest temporary borrowing since inception of the new century. A billion less capital than needed for upkeep and growth after five years of liberality in thirteen! Not only are sails furled; the ship is anchored. Yet a nation's prosperity rests on the efficiency of its commerce!

Locomotive Problems in Great Britain

(From our London Correspondent.)

A WIDESPREAD discussion has resulted from the recent serious Aisgill collision up in the Northwest of England. It may be remembered by readers of this journal that the first of two trains stopped from want of steam on a long gradient whilst the second train ran past the signals that were against it and so crashed into its predecessor. It turns out that the driver of the second train failed to observe the signals owing to the fact that all his attention was required just then going round his engine for lubricating purposes and other work connected with the running of the locomotive.

Engines rarely fail for want of steam in hauling modern train loads and the railway mechanical engineer has attacked this and other problems with eagerness and success. As a writer here points out, changes in the type of locomotive employed for modern train working have been slow and cannot be regarded in any sense as revolutionary. There has been a gradual increase in size, and the evaporative capacity has been raised by putting more weight into the boiler. That is a logical development, as although many interdependent factors are involved an essential condition of the modern locomotive is that the steam supply shall be sufficient to meet all possible conditions and be capable of hauling the train even when the coal supplied is of somewhat inferior quality. Stated in this bald way the task of the locomotive engineer may not appear to be an exceedingly difficult one. But that would be a wrong impression, for account has to be taken of many things, of which boiler capacity, cylinder dimensions, adhesive weight, and wheel base problems, are among the more important of the mechanical questions. Strict regard has also to be paid to the economic factors which may be broadly summarized as increased hauling capacity with a minimum increase in first cost, a proportionate decrease in fuel consumption, and an actual decrease in maintenance charges. Nor is this quite all. The civil as well as the mechanical engineering aspect has to be taken into account. The question of the permissible weight is dependent upon the character of the permanent way. Much

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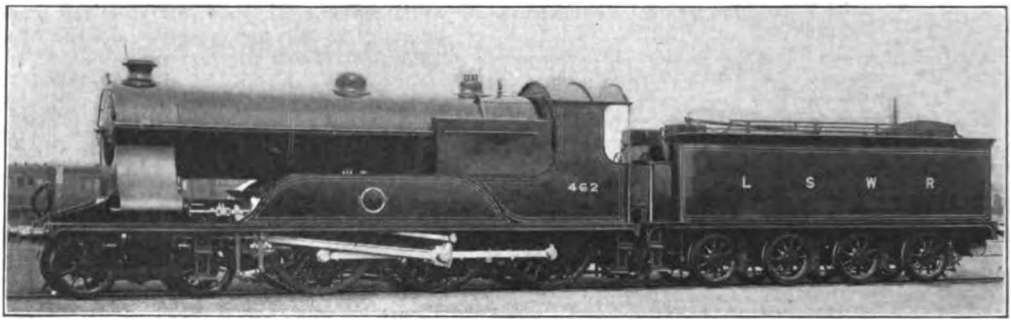

NEWEST MODEL OF FOUR CYLINDER EXPRESS ENGINE
FOR THE LONDON AND SOUTHWESTERN RAILWAY, ENGLAND.

has been done during the past few years in strengthening main line tracks, in the substitution of heavier for lighter rails and in bridge reconstruction to permit the running of heavier loads upon the roadbeds. The permanent way engineer must be consulted and in modern railway practice the load upon one axle must be limited to about 20 tons. These are the broad features of the problem presented to the locomotive designer, and as in other fields of engineering, the design adopted is in the nature of a compromise.

In the past the demand for additional power has been largely met by the development of boiler dimensions, and but little more can be accomplished in that direction. It was this tendency which brought the Atlantic type of locomotive into existence, but that is now being largely superseded by the 4-6-0 design which not only enables a longer boiler to be fitted, but owing to the difference in the coupled wheel arrangement gives a better distribution of the load and meets the conditions laid down by the permanent way engineer. The conversion of Atlantics into 4-6-0 locomotives is steadily proceeding, and many companies are building for their passenger services a considerable number of these engines, in weights up to 80 tons (one ton equals 2240 pounds) or considerably over 100 tons for engine and tender. For big tank engines the 4-4-2 design has been developed to do the work of the 4-4-0 class.

The limits of size in boilers having been approached, attention is now being concentrated on other points. There is no doubt that much can be accomplished by a careful consideration of the conditions to be met and by limiting the locomotive when built to the class of service for which it was originally designed. That is the explanation of the survival on some British main line routes of the compound locomotive.

In a broad sense it may be stated that boiler design in Great Britain has become standardized, locomotive engineers having generally adopted the multi-tubular type with the rectangular firebox. Many experiments have, however, been made wth fireboxes of different types, an instance being the long series of test runs carried out on the London and North Western Railway with deep and shallow fires to determine the question from the point of view of coal consumption, the results pointing to the advantage possessed by that type. It must be admitted, too, that satisfactory experience of various designs, usually of the round-roof type, has been gained on the London and South-Western, the North-Eastern, and other railways. The Wootten wide type of firebox is threatened by the growing popularity of the 4-6-0 locomotive, which restricts width, and its future largely depends upon the adoption of the Pacific type of locomotive, which is regarded as unlikely. While no hard-and-fast lines can be laid down, the Belpaire firebox, with its large heating surface and comparatively low maintenance costs, has won the favor of a majority of locomotive builders.

The most notable development of the past ten years has been the adoption in railway practice of superheating. Its advantages are now so generally admitted that there is no need to argue the case. Ample comparative evidence is available of the coal and water consumption of superheated and non-superheated engines. The essential point to note in regard to superheating is not that of economy only; it is rather that this practice is equivalent to enlarging the boiler and forming a reserve of power which, as experience has frequently shown, facilitates time-keeping with modern heavy train loads. Quite recently the ability of superheated engines to haul loads exceeding 400 tons over heavy roads has been demonstrated. The superheater is now being fitted to a large number of different types of passenger and goods locomotives and its employment is likely to become standard practice. Opinions differ as to relative costs of maintenance of locomotives using superheated steam and those employing saturated steam, but a point in favor of the superheated engine from the standpoint of maintenance is the possibility of employing lower steam pressures.

The advantages of feed-water heating are not yet generally admitted although the object sought, that of getting a part of the boiler work done before the water passes the clack valve, is an obvious economy. Feed-water heating is accomplished by making use either of the exhaust steam or of the heat of the waste gases passing up the chimney, or of both in series. On Egyptian railways feed-water heating has resulted in an economy in coal consumption of 20 per cent. English railway engineers are by no means agreed on the subject, but experiments on the Brighton Railway have shown an economy from feed-water heating of 15 per cent. Reference should also be made to the attention now being given to water softening, with the object of adding to the efficiency of the boiler.

An intimate relation exists between the size of the boiler and the cylinder dimensions, and these are again partly dependent upon adhesive weight. Here it is difficult to fix practice. The use of three or four high-pressure cylinders is becoming common. An advantage of the four-cylinder engine is that there is a better distribution of the thrust. Up to a certain point the thrust of two

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cylinders can be employed without risk, but beyond that point the friction renders it necessary to increase the size of the bearings considerably. It is preferable, therefore, when that point is reached to employ four cylinders, and it is believed that the extra cost and complication are justified by results. At the same time it is not a subject on which to be dogmatic. The latest development is the application to a North-Eastern Railway 4-6-0 locomotive of the Stumpf cylinder arrangement on the uniflow principle. The notable fact in connection with valve gear is the advance in favor of the Walschaert type.

With the improvements which have been made in the lubrication system it should scarcely ever be necessary for the driver of an express train to leave the footplate while the engine is in motion. As a normal practice it may be considered obsolete. Mechanical lubrication is now largely employed for the piston, cylinders, and valves, and oil cups which will hold sufficient for a fairly long run are generally fitted to express passenger engines. In addition to mechanical and sight-feed lubrication there is a tendency to lighten the work of the driver in other ways in order that he may be left free to observe signals and to run his train to schedule time. The cab of the modern express locomotive—of which the Great Eastern may be selected as an excellent type—is large and well protected, and in Great Eastern design has lifting side windows. In such a cab the driver has at his disposal a variety of accessory devices which should make it unnecessary, except in exceptional circumstances, for him to leave his position. If the responsibility of the driver has increased with the increase in size of the locomotive, the speed demanded, and the load to be hauled, the locomotive designer has in various ways made the work easier for the engine crew.

In what is written above attention has been given only to a few of the main points. The question of adhesive weights is an important one, and in this respect the 4-6-0 type of locomotive has an advantage over the 4-4-2. It is sound practice to arrange that the adhesive power shall be in excess of the tractive power. A feature in the high-powered modern express locomotive as compared with its predecessors is the better average speed which can be maintained with heavy loads. In place of dropping back to a speed of 30 to 35 miles an hour on heavy inclines and restoring the balance by a speed of 80 miles on falling gradients a 4-6-0 superheated locomotive will keep the speed range within much narrower limits—say, 45 to 70—and still keep better time.

What the next step in the chain of development may be it is difficult to predict. The limit in size of the steam locomotive under present conditions has been nearly reached; the Great Western Company have not repeated the experiment made in the construction of the Great Bear. A satisfactory feature is the tendency, first revealed when Bowen Cooke became chief mechanical engineer of the London anl North-Western Railway, for the locomotive designers of British railways to undertake joint experimental work and to carry out comparative tests with different types of locomotives with the object of determining the type best suited for special services.

The Southern Pacific's School of Railroading

SEVEN young men from the ranks of railway employes of the Southern Pacific have recently been awarded scholarships in the school of practical railroading which that company maintains. The Southern Pacific's school of railroading, under Norman Collyer, is unique among educational institutions. Officers of the company conduct the course and the students are scattered from Portland to El Paso. There are no paid instructors and no tuition fees. The students are under salary. None but company employes are eligible and no married men are appointed, in which respect there is a resemblance to the schools at Annapolis and West Point. The students are between the ages of twenty-one and thirty and are chosen for grit, ambition, intelligence and efficiency that they have shown in their previous work.

The Southern Pacific course covers a period of forty-two months, approximately that of a college curriculum. The beginner starts at a medium-sized station, where he serves six months as warehouseman, baggageman and clerk, performing the actual work as any other employe. He is then transferred to another division to spend three months in track work. After he has learned to handle a spike maul and raise low joints, he is moved to the Flood Building and puts in three months with the superintendent of transportation. Next comes three months in the shops, then the same period in train service; then three months in the accounting department; and finally three months in the tariff bureau of the traffic department, making two years in all.

If he has met the rigid requirements of the course, the student is now ready to choose whether he will follow the operating, the traffic, or the accounting branch of the railroad business. In whichever line he elects, he is given special opportunity for experience and advancement.

If the student chooses the operating department, he returns to the shops and roundhouses for a further polishing along mechanical lines; he puts in two months in the stores department and two months in the signal engineeer's office; he acquires greater efficiency in maintenance of way; later he spends two months in the general manager's office, where he gets in touch with the organization as a whole; and finally he is given a five months' finishing with yardmasters, dispatchers and trainmasters of a busy division. At the end of this time, he is adjudged either fit material for a minor official position or not worth saving.

Similarly in the traffic department, a student is given special work in a ticket office, in the solicitation of freight, and as assistant to a freight and passenger agent at an outlying point, where he will be directly in contact with patrons of the company and become versed in the art of selling transportation.

If he chooses the auditing department, his last eighteen months are spent entirely in the general office tracing the intricate threads of the accounts.

Since appointments to the student course are

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made only from the ranks of employes, it frequently happens that the student has had sound and practical experience in one or more of the departments assigned. In this case, he is given advanced credit and is not required to duplicate his work unnecessarily, since the company is frankly looking forward to his completing his course and sharing the burden of official responsibility.

The salaries are prescribed according to a schedule and vary from $75 to $100 per month. The majority of the students have surrendered positions paying more than $75 per month in order to take advantage of the unusual opportunities offered by the course.

Panama Railroad Cross Ties

THE chief engineer of the Panama Railroad has prepared a report of the use and life of hardwood ties laid in the roadbed of the line since 1878, and specifications under which they have been purchased since the United States assumed control of the road. The report, in part, is as follows:

The original track of the Panama Railroad, as it existed in 1885, before being disturbed in any way by the Canal operations, was laid with small hardwood ties obtained on the Isthmus, and from Colombia. The greater part of these ties were procured from the north coast of Colombia, and were shipped to Colon from the port of Barranquilla. They were of a variety of wood commonly known as lignum vitae (*guayacum recina*), and now spoken of as black guayacum, to distinguish it from yellow guayacum, a wood of the same family, but with less power of resistance to mechanical wear or decay.

Other varieties of wood, such as balsamo (or quira), and polvillo, were procured by the company, but the only species available at the present time are a few balsamo ties, which were laid in the old track near Mount Hope in 1900, and which were taken out of the roadbed last year, and replaced by a larger tie. Practically, the only wood that has stood the test of time is the black guayacum, procured in the early days of the railroad's operations.

The guayacum ties procured by the old company were very small, being "pole" ties, about five to six inches thick, with a six to seven-inch face, eight feet long; some of them were quite crooked and irregular in shape. These carried the light traffic of the railroad prior to American Canal operations without difficulty, but when construction work was begun in earnest, it was found necessary to replace the small ties with those of a larger dimension.

There has been so much said about the long life of these hardwood ties that it would be well to set forth what little authentic information is available. The following are extracts from the annual reports since 1878:

1880—About 5,000 new lignum vitae ties have been placed in the track.

1884—During the year, 30,000 new lignum vitae ties have been put in, and during the coming year, 3,000 additional will be required.

1885—During the year 1885, 10,000 lignum vitae ties have been received and put in the roadbed. The existing contract for the 30,000 spoken of in the annual report of 1884 will complete the work for the present.

1886—The number of lignum vitae ties put in in the road in 1885 amounted to 10,000, while in 1886, over 20,000 have been received.

1888—The number of lignum vitae ties placed in the main line during the year was 5,456, and upon deviations, 8,747.

1889—Such is the durability of lignum vitae cross-ties used in the track that only 5,855 new ones were required for the year.

1890—The track has been kept in excellent condition, although only 4,014 lignum vitae ties were received during the year.

1891—The general condition of the roadbed and track continues excellent. Only 6,167 lignum vitae ties were laid during the year. The exceptional durability of these ties (about 30 years, when of good quality) reduces the number of yearly requirements to small proportions.

1892—Four thousand one hundred and twelve lignum vitae ties were laid.

1893—Four thousand five hundred and seven genuine lignum vitae ties were laid, and 2,539 of native hardwoods for sidings.

1894—Seven thousand one hundred and ninety-six lignum vitae ties were laid.

1895—Ten thousand two hundred and twenty lignum vitae ties were laid.

The main line of the railroad was first double-tracked from White House (near Las Cascades) to Tabernilla, to provide for the movement of the spoil trains to and from the Tabernilla dumps, and it was found necessary to remove many of the small hardwood ties from the roadbed in this section, on account of the increased traffic. These small ties were allowed to remain in the track in the section between Empire and Culebra, where the line was double-tracked, and where the traffic was comparatively light. There are many of these old ties still in use in the roadbed in that section.

The hardwood ties laid in the old track were, generally speaking, in very good condition. There were little, if any, signs of decay, but in many cases, especially with the smaller ties, they were badly worn at the rail seat by the mechanical action of the base of the rail, no tie plates being used on the ties. They were also "spike killed," caused by replacing spikes and changing rail. It will be interesting to note that many of the ties removed from the main track at that time, and later, are now being relaid on the tracks connecting wth the new terminal docks at Cristobal. The timber in the ties is practically as good as ever. As their smaller size is not objectionable in the yard tracks, it is expected that they will still have a long life in other services. Tie plates are not necessary with these ties, which results in some saving.

The mechanical wear on the old hardwood ties in contradistinction to the decay of the wood is demonstrated by the fact that while the base of the rail, and the driven spikes have cut into the hardwood and weathered it, the material in the balance is as good as ever. The same experience has, of

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course, long been encountered and commented upon in the tie records of the United States. The difference between the experience there and here, however, lies in the fact that the ties referred to in the former records have probably not been used for a period longer than eight to ten years, while local hardwood ties are from 20 to 25 years old, and have been used in a tropical climate where all other wood decays in from three to five years.

The black guayacum cross-tie is probably a thing of the past. Such material is now so valuable for other purposes in connection with machinery and manufacturing arts, that it is not to be expected that it can be procured at reasonable prices for cross-ties. The Panama Railroad Company has procured only 4,000 or 5,000 guayacum cross-ties in the past six years, and most of these have been of the inferior variety known as yellow guayacum.

During the past few years guayacum cross-ties have been purchased under the following prices and specifications:

1898-1904.

First-class—6 by 8 inches, by 8 feet, $1.50 each.
Second-class—5½ by 6 inches, by 7.9 feet, $1 each.

1907.

First-class—6 by 8 inches, by 8 feet, $1.62 each.
Second-class—5½ by 7 inches, by 7.9 feet, $1.42 each.

1908-1910.

First-class—7 by 9 inches, by 8.6 feet, $2.10 each.
Second-class—6½ by 8 inches, by 8.3 feet, $1.75 each.

1911.

First-class—7 by 9 inches, by 8.6 feet, $2.25 each.
Second-class—6½ by 8 inches, by 8.3 feet, $1.75 each.

SPECIFICATIONS.

1. The material used shall be black or yellow guayacum, commonly known as guayacan or lignum vitae.

2. All ties shall be well and smoothly hewed out of straight growing timber of specified dimensions, and out of wind, sawed, or square cut ends, with straight and parallel sides and faces. All ties shall have bark entirely removed when cut. Ties shall be free of splits, loose, or decayed knots, or any other imperfections, which may impair their strength or durability. Not more than one inch of sap wood will be allowed, measured across the side or face.

3. Sawed ties will be accepted agreeing in other respects with the above paragraph, provided the saw cut extends throughout the length of the tie, making parallel sides and faces.

4. The width of the face and the thickness of the tie shall conform to sizes mentioned in the table of dimensions below, but a variation of size will be permitted of one inch over in thickness, one inch over in width, and three inches over in length. No variation in size under those specified will be allowed.

TABLE OF DIMENSIONS.

	Thickness. Inches.	Width of face. Inches.	Length. Ft. and In.	Maximum variation from straight edge. Top and bottom. Inches.	Sides. Inches.
1st class	7	9	8 6	½	2
2nd class	6½	8	8 3	1	3

Not more than 10 per cent of any particular shipment will be accepted as seconds, and it is desired to reduce this percentage as much as possible.

Personal

William C. Brown.

WILLIAM C. BROWN, president of the New York Central Lines, has resigned, effective January 1, 1914. His reasons for taking this action, according to a letter addressed to the directors of the four companies which comprise the system, are a desire to be relieved from the care, hard work and responsibility connected with the office and on account of a failing hearing which makes the performance of his duties either in the Board Room or in frequent important conferences, embarrassing. The various boards have accepted his resignation with regret, and have passed resolutions commendatory of the valuable service which he has rendered to the system.

Mr. Brown was born in the town of Norway, Herkimer County, New York, on July 29, 1853. When sixteen years of age he began his railroad career at Thompson, Ill., with the Chicago, Milwaukee and St. Paul Railroad as a section hand. While thus employed he devoted his evenings and spare time to helping the station agent, in return for which the station agent instructed him in telegraphy. In the spring of 1870, he was appointed operator at Charles City, Iowa. A year later he was night operator in the train dispatcher's office at Minneapolis.

In June, 1872, he entered the service of the Illinois Central as train dispatcher at Waterloo, Ia., and in March, 1875, went to the Chicago, Rock Island & Pacific Railway as dispatcher at Wilton Junction. On July 1, 1876, he began an uninterrupted service of twenty-five years with the Chicago, Burlington & Quincy Railroad Company. He entered the service as dispatcher at Ottumwa, Ia., and became successively chief dispatcher, trainmaster and assistant superintendent of the St. Louis division at Beardstown, Ill. On New Year's Day, 1887, he was given his first divisional superintendency. This was of the Iowa Mines at Burlington, Ia. In August, 1890,

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WILLIAM C. BROWN.

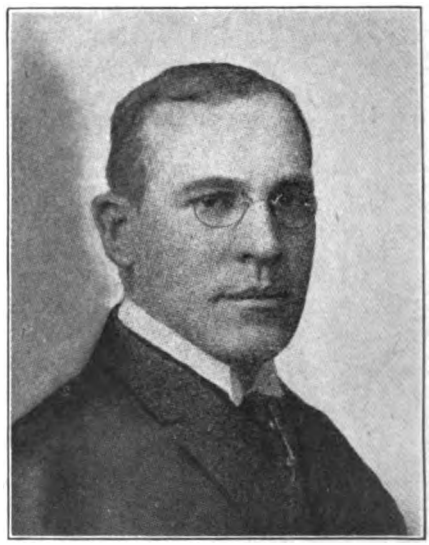
he was appointed general manager of the Missouri lines of the Burlington system.

His next promotion, again on New Year's Day, 1896, was to the position of general manager of the Burlington at Chicago. He relinquished this office on June 30, 1901, to enter the service of the New York Central lines as vice-president and general manager of the Lake Shore & Michigan Southern Railway Company, with headquarters at Cleveland. The twelve years of Mr. Brown's connection with the New York Central lines have witnessed a greater growth in those properties, and in the traffic handled by them, than any similar period in their history. During this same period the work of electrifying the New York Central in and about New York City was begun and carried to completion and the Grand Central Terminal was reconstructed in its entirety and greatly enlarged without interruption of train service and without a single serious accident to a passenger.

C. W. NELSON.

Clement W. Nelson.

CLEMENT W. NELSON, who has been appointed assistant to president of the St. Louis Southwestern Railway, was born at Morristown, Ill., July 12, 1870. He received a common school education and took his first position in railway service in June, 1889, with the American Express Company (Great Northern Railway). From September, 1890, to September, 1896, he was clerk, timekeeper, etc., in various departments of the Great Northern Railway, and from 1896 to June, 1899, chief clerk to superintendent on various divisions of the same road. Mr. Nelson went with the St. Louis Southwestern Railway in July, 1899, and until March, 1900, was chief clerk to the general superintendent. He was chief clerk to vice-president and general manager from March, 1900, to May 18, 1906. On the latter date he was appointed assistant general manager, a position he has held until his recent appointment, October 7, 1913, when he became assistant to president, St. Louis Southwestern Railway lines, with offices at St. Louis, Mo.



J. W. Newlean.

J. W. NEWLEAN, who has been elected vice-president and comptroller in charge of the financial accounting and supply departments of Wells Fargo and Company, with headquarters at Chicago, was born on October 28, 1875, in Chicago. He was educated in the public schools of Omaha, Neb., and began railway work on December 1, 1891, in the freight claim department of the Chicago, Burlington and Quincy. He went to the Union Pacific in March, 1892, and filled varous subordinate positions in different offices of the accounting department until July, 1901, when he was transferred to the service of the general auditor of the Union Pacific and the Southern Pacific, then known as the "Harriman System," and later was appointed chief clerk. In February, 1909, he became general auditor for the receivers of the Chicago Great Western, and in September of that year he was made auditor of the reorganized company. Mr.

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Newlean was appointed general auditor of the Illinois Central and the Yazoo and Mississippi Valley in January, 1911, which position he held until March, 1912, when he became comptroller of Wells Fargo and Company. He is now elected vice-president and comptroller, as above mentioned.

James G. Woodworth.

JAMES G. WOODWORTH, who has been elected vice-president in charge of traffic of the Northern Pacific, with headquarters at St. Paul, Minn., was born October 31, 1864, at Hillsdale, Mich. He began railway work in 1879 as an office boy in the general freight department of the Chicago and North Western, and from May, 1880, to March, 1883, was telegraph operator and station agent at De Smet, S. Dak. He then became chief clerk in the general agent's office of the Chicago, St. Paul, Minneapolis and Omaha at Minneapolis, Minn., and in September of the following year went to the Union Pacific as freight solicitor at Portland, Ore. From January, 1886, to September, 1888, he was successively traveling freight agent and chief clerk in the general freight department of the Oregon Railway and Navigation Company. He was then made assistant general freight agent of that company, and in December, 1889, was appointed to a similar position on the Union Pacific, with headquarters at Portland. He was advanced to general freight agent of the Pacific division in July of the following year, and eight months later became assistant general Western freight agent at Portland, being transferred to Omaha, Neb., in November, 1892, as assistant general freight agent. Mr. Woodworth left the Union Pacific in July, 1893, and for one year was general freight agent of the Iowa Central. He returned to the Oregon Railway and Navigation Company as assistant to the receiver and general manager in July, 1894, and two years later became assistant to the president of that company. He was afterwards general freight agent from October, 1897, to October, 1899, when he became traffic manager of the Pacific Coast Company. He left the latter company to accept the position of assistant to the first vice-president of the Chicago, Burlington and Quincy in January, 1902, where he remained for three years, resigning to become traffic manager of the Northern Pacific. He held the latter office at the time of his recent election to the vice-presidency.

F. S. Holbrook.

FREDERICK S. HOLBROOK, general traffic manager of Wells Fargo and Company Express at New York, has been elected vice-president in charge of traffic. He was born on September 25, 1864, and began railway work in 1881, as a clerk on the Ogdensburg and Champlain, now a part of the Rutland, at Norwood, N. Y. From 1886 to 1889, he was chief clerk in the general freight office at Ogdensburg, N. Y., and then for two years was agent of the same road, also the Central Vermont and the Canadian Atlantic at Rouses Point. In 1890 he was made cashier of the Ogdensburg Transit Company at Chicago, and in 1894 became cashier of the Central Vermont at Pier 36, East River, N. Y., becoming commercial agent of the same road in 1896 at New York. He went to the West Shore in February, 1900, as assistant general freight agent, and left that company in March of the following year to become first assistant general freight agent of the New York, New Haven and Hartford at Boston, Mass. From July, 1901, to September, 1908, he was general freight agent of the same road at New Haven, Conn. In September, 1908, he became chairman of the committee on uniform classification at Chicago, and from May, 1909, to January, 1912, was chairman of the Official Classification Committee at New York. He was appointed general traffic manager of Wells Fargo and Company Express on January 1, 1912, and now becomes vice-president in charge of traffic of the same company, as above noted.

FREDERICK S. HOLBROOK.

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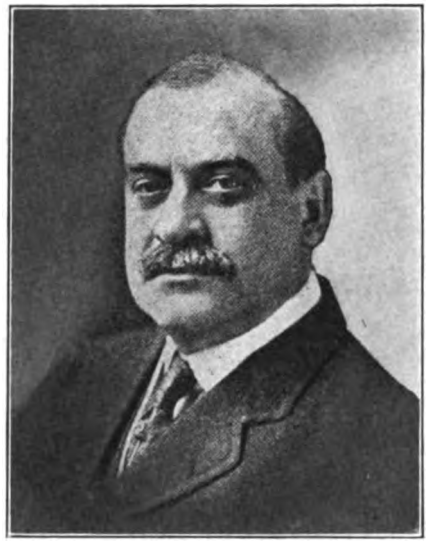

Thomas Milton Schumacher.

THOMAS MILTON SCHUMACHER, vice-president of the El Paso and Southwestern System at New York, has been elected chairman of the Board of the Chicago, Rock Island and Pacific Railway and of the Rock Island Company, succeeding D. G. Reid, also chairman of the executive committee of both companies, succeeding W. H. Moore. He was born on February 16, 1862, at Williamsport, Pa., and began railway work in 1879 as a telegraph operator for the Atlantic and Great Western. He then served in various positions on different roads in the operating department as operator, and in the train service until 1883, when he became clerk in the Missouri Pacific local office at St. Louis, Mo. From 1885 to 1887, he served as cashier, chief clerk and contracting agent at St. Louis of the Cleveland, Columbus, Cincinnati and Indianapolis. In 1887, he became chief clerk in the office of the general agent of the Union Pacific at Omaha, Neb., and three years later was made general agent of that road at San Francisco, Cal, which position he held four years. He was subsequently for two years vice-president and general manager of the Continental Fruit Express, with headquarters at Chicago, with the exception of about six months from November 1, 1901, when he resumed his former position. Mr. Schumacher was then until September, 1905, traffic manager of the Oregon Short Line, and subsequently for a short time was traffic manager of the United Fruit Company at New York. In 1906 he was made general traffic manager of the railroads and industrial companies controlled by Phelps, Dodge and Company of New York, with headquarters at Chicago, where he remained until December 1, 1909, when he resigned to accept the vice-presidency of the Denver and Rio Grande and Western Pacific, with office at San Francisco. Mr. Schumacher was appointed assistant director of traffic of the Union Pacific and Southern Pacific systems on May 1, 1910, with headquarters at Chicago, and on December 1, of that year, became traffic manager of the American Smelting and Refining Company and its allied companies with offices at New York. On November 1, 1912, he became vice-president of the El Paso and Southwestern system, also vice-president of the Nevada Northern and the Bingham and Garfield.

William J. Cunningham.

WILLIAM J. CUNNINGHAM, who has become assistant to the president of the New York, New Haven and Hartford, was born April 29, 1875, at St. John, N. B. He began railway work in 1892 with the Canadian Pacific as stenographer and ticket clerk in the passenger department at St. John, N. B., and Boston, Mass. In 1896 he went to the Boston and Albany as clerk in the superintendent's office at Boston, and three years later became statistical clerk to the general manager of the New York, New Haven and Hartford. From 1901 to 1907 he was employed in various capacities by the Delaware, Lackawanna and Western, his last position being assistant chief clerk to the general superintendent. In November, 1907, he became statistician of the Boston and Albany. When the Harvard Business School was established in 1908 Mr. Cunningham was engaged for two years as lecturer on railroad operation. In September, 1910, he was appointed assistant professor of transportation, but continued to act as consulting statistician for the Boston and Albany. Coincident with the election of Mr. Hustis as vice-president of the New York, New Haven and Hartford, Professor Cunningham was appointed vice-president's assistant, with headquarers at New Haven, Conn. Upon Mr. Hustis' promotion to the presidency, Mr. Cunningham became the president's assistant. To permit of the acceptance of this appointment for two years Harvard University has granted partial leave of absence for that time, and Professor Cunningham will continue to lecture at Harvard on one day per week.

WILLIAM J. CUNNINGHAM.

Alexander Hilton.

ALEXANDER HILTON, general passenger agent of the St. Louis and San Francisco, has been appointed passenger traffic manager, with headquarters at St. Louis, Mo. He was born at Hamilton, Ont., and began railway work

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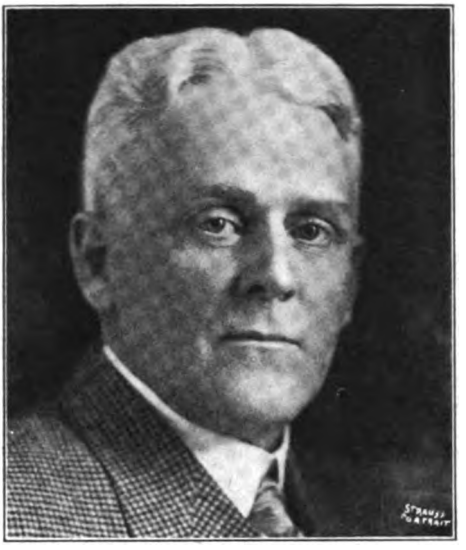
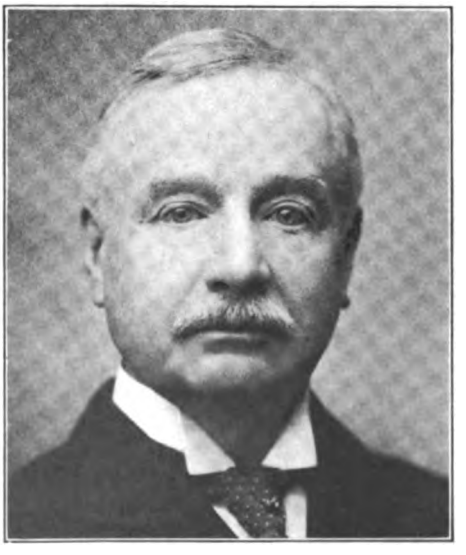


ALEXANDER HILTON.

in 1878, as a clerk on the Great Western Railway of Canada, now a part of the Grand Trunk. From 1880, to December, 1884, he was a clerk in the passenger department of the Chicago and Alton, and then to 1889 was city passenger and ticket agent of the same road at Kansas City. In 1887 he acted as Pacific Coast agent at San Francisco, Cal., and from 1889 to March 1, 1901, was general agent in the passenger department of the same road at Kansas City. On March 1, 1901, he was appointed assistant general passenger agent of the Kansas City, Fort Scott and Memphis; the following August he was made general passenger agent of its successor, the St. Louis and San Francisco, and now becomes passenger traffic manager of the same road. Since January 1, 1905, when the office of passenger traffic manager was abolished, he has assumed the duties of that position without change of title.



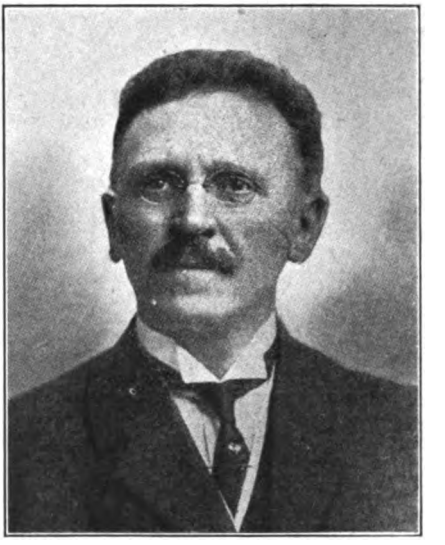
CHARLES W. JOHNSON.

Charles W. Johnson.

CHARLES W. JOHNSON, who has been chief engineer of the Chicago, St. Paul, Minneapolis and Omaha since its incorporation thirty-two years ago, resigned on November 1st, to become consulting engineer of the same road.

Mr. Johnson was born at Johnstown, N. Y., and educated in France and at Union College, where he took the degree of civil engineer in 1866. In 1867 he became assistant in the office of the chief engineer of the Lake Shore, and in 1870 assistant engineer of construction of the Rock Island. From 1871 to 1878 he was assistant and division engineer of construction of the Wisconsin Central.

He was made chief engineer of the Chicago, St. Paul, and Minneapolis Railroad March 1, 1879, and when ths property took over the St. Paul and Sioux City in 1881 and became the Chicago, St. Paul, Minneapolis and Omaha, he became chief engineer of the new road, with headquarters in St. Paul.



H. Rettinghouse.

H. RETTINGHOUSE, who has been appointed as chief engineer of the Chicago, St. Paul, Minneapolis and Omaha Railway, was born July 30, 1861, in Germany. He was educated there and came to the United States in 1882. In 1883 he was a rodman on the Wisconsin Central Railway. He was in a similar position in 1884 with the M. L. S. & W. Ry. and then successively instrument man and assistant engineer in charge of location, construction and maintenance. From 1893 to 1897 Mr. Rettinghouse was engaged in general engineering business at Ashland, Wis. He was assistant engineer of the Chicago and North Western Railway from 1897 to May, 1900, and superintendent of bridges and buildings on the Ashland division of the same road from May, 1900, to February, 1905. He was division engineer of the Wisconsin Central Railway, Southern division, for two years, and then was appointed division engineer of the Chicago and North Western at Boone, Iowa. He was made superintendent of the Iowa and Minnesota

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divisions at Mason City, Iowa, on April 1, 1912. His appointment as chief engineer of the Chicago, St. Paul, Minneapolis and Omaha Railway is effective November 1.

E. J. Devans.

E. J. DEVANS, who recently was appointed general superintendent of the Buffalo, Rochester and Pittsburgh, was born in 1867, at Medina, N. Y. Educated in public schools; entered railway service in May, 1883, as telegraph operator with the New York Central, and worked successively with the New York Central, Delaware, Lackawanna and Western, Western New York and Pennsylvania, and West Shore railroads as telegraph operator and agent until 1888.

He entered the service of the Buffalo, Rochester and Pittsburgh as operator and agent in October, 1888, was transferred to superintendent's office as clerk in September, 1889, and in April, 1893, was transferred to copier in the train dispatchers' office; appointed train dispatcher in August, 1893; appointed chief dispatcher and trainmaster, September, 1899.

Mr. Devans served as special representative to the general manager from May, 1905, to March, 1907; appointed superintendent of Rochester and Buffalo divisions in March, 1907; appointed general superintendent of the Buffalo, Rochester and Pittsburgh Railway, October 1, 1913. This position had been vacant for the past two years, the duties of both positions being looked after by the general manager, Mr. T. F. Brennan.

D. C. Douglass.

D. C. DOUGLASS, who was recently appointed general manager of the Maine Central, was born February 2, 1877, in Leeds, Maine; entered railroad service in July, 1894, and employed until November 10, 1897, as stenographer in passenger traffic department and to the general manager, Maine Central Railroad Company; from November, 1897, to February 15, 1910, secretary to general manager and vice-president and general manager, same company; February 15, 1910, to July 10, 1913, assistant to vice-president and general manager, same company; July 10 to October 15, 1913, assistant to the president, same company, and October 16, 1913, appointed general manager, Maine Central Railroad Company and Portland Terminal Company.

Joseph Paxton Blair.

AS general counsel of the Southern Pacific Company, to which office he has been recently appointed, Mr. Blair's unusual attainments especially qualify him to successfully handle those complex problems incident to the transportation development of his company.

Joseph Paxton Blair was born December 5, 1859, at Columbus, Miss. His father was David Paxton and his mother Elizabeth Armstead (Pope) Blair. He comes of Scotch-Irish stock through his paternal ancestry, while on the maternal side he is of English descent.

Mr. Blair's education was obtained at the University of Virginia, from which institution he received the degree of A. M. in 1882. During his college days he was the classmate of President Woodrow Wilson.

Removing to Louisiana in 1882, Mr. Blair became assistant professor at the University of Louisiana, now Taulane University, in which position he remained for two years. Having studied law and gained admission to the Bar, he began practice in New Orleans in 1884, in the offices of Judge Edward D. White, now Chief Justice of the United States. Later he became a member of the law firm of Leovy and Blair, of New Orleans, his partner being Mr. Henry J. Leovy. In 1895 he entered into partnership with Mr. George Denegre, the firm name being Denegre and Blair. In this partnership he continued his professional activities with notable success until November 1, 1913, when he was made general counsel of the Southern Pacfic Company, with his principal office in New York City.

GEORGE W. ROBB.

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George W. Robb.

GEORGE W. ROBB, who was recently appointed superintendent of motive power of the Grand Trunk Pacific Railway, with headquarters at Transcona, began his railway service in 1881 as car repairer and apprentice for the Grand Trunk. In 1885 he was made improver at Toronto and in 1886, machinist for the Canadian Pacific at Winnipeg. In 1888, he became night foreman of St. P., M. & M. and in 1889, became day foreman for the Great Northern at Wilmire. In 1891 he went to the Chicago Great Western as locomotive foreman and in 1895 became shop foreman for the Canada Atlantic from which he was promoted to general foreman in 1895. 1908 found him with the Grand Trunk Pacific as assistant master mechanic and one year later he was promoted to the position of master mechanic, which he held until his recent appointment.

R. Quayle.

R. QUAYLE, who was recently appointed general superintendent of motive power and car department of the Chicago and North Western, entered railway service with the Chicago and North Western Railways, as an apprentice to the machinist trade, in 1871, and was gang foreman in charge of construction of new locomotives for three years; was foreman of the machine end of the car department about five years, during which time he was also draftsman for the car department, and in 1885, he was appointed master mechanic in charge of motive power and car departments in the state of Iowa, with headquarters at Clinton, Iowa; in 1891 he

R. QUAYLE.

accepted position as general master mechanic for the Milwaukee, Lake Shore and Western Railway, in charge of motive power and car departments, and the Chicago and North Western Railway absorbed the former road in 1893, and December 1, 1894, he was made superintendent of motive power and machinery of the Chicago and North Western Railway, and November 1, 1913, made general superintendent motive power and car departments.

Financial

Unsatisfactory Railway Earnings.

SEPTEMBER returns furnish emphatic testimony that the increases in railway expenses are more than offsetting the gains in gross revenues. Furthermore, the gains in gross are on a diminishing scale, there being an actual falling off in the case of many roads. The latest figures compiled by the *Financial Chronicle* show that the gross earnings for 459 roads for the month of September amounted to approximately $285,000,000, while the operating expenses were $192,000,000, leaving net earnings of nearly $93,000,000. In September, 1912, gross earnings totaled $275,000,000, operating expenses $177,000,000 and net earnings $98,000,000. In other words, net earnings for September of the present year, showed a decrease of over $5,000,000 as compared with those of 1912. In view of the $6,000,000 increase in expenses recently forced upon the railroads by the award of the Arbitration Board in Eastern trainmen's wage controversy, the outlook cannot exactly be viewed with complacency.

In addition to this unfavorable trend shown in September results, preliminary returns in October's gross indicate a sharp and quite general decrease as compared with the results for the tenth month of 1912. For example, the Colorado and Southern, shows a decline of over $300,000, Indiana and Great Northern nearly the same amount, Missouri, Kansas and Texas $265,000, Chicago and Alton $216,000, Texas and Pacific $171,000, Wabash $148,000, etc. In fact Western roads, Southern roads and roads in the Southwest, quite generally report losses. This means of course a falling off in railway traffic due to smaller grain movements and to generally unsettled business conditions, but with operating expenses remaining high, with costly legislation constantly being placed upon the statute books, and with boards of arbitration adding to the carriers' burdens, it takes rare optimism to gather any amount of encouragement from the outlook.

As to the trend shown in the more complete September figures, the "Financial Chronicle" has the following to say:

"The advance in operating cost is becoming year by year a more pronounced feature in the revenue returns of the railroads. In September last year the gain in gross revenues was of more satisfactory proportions, but the net, even then, failed to keep pace with the rise in gross receipts. In other words, our September statement for 1912 showed $19,891,032 increase in gross, or 7.88 per cent, but this was attended by an addition to expenses of $13,855,420, or 8.58 per cent, leaving, therefore, only $6,035,612 increase in net, or 6.64 per cent. Extending the comparisons further back, we find that in September, 1911, our compilations showed only minor changes in the totals, namely, $39,801 increase in gross and $1,321,815 increase in net. In September, 1910, there

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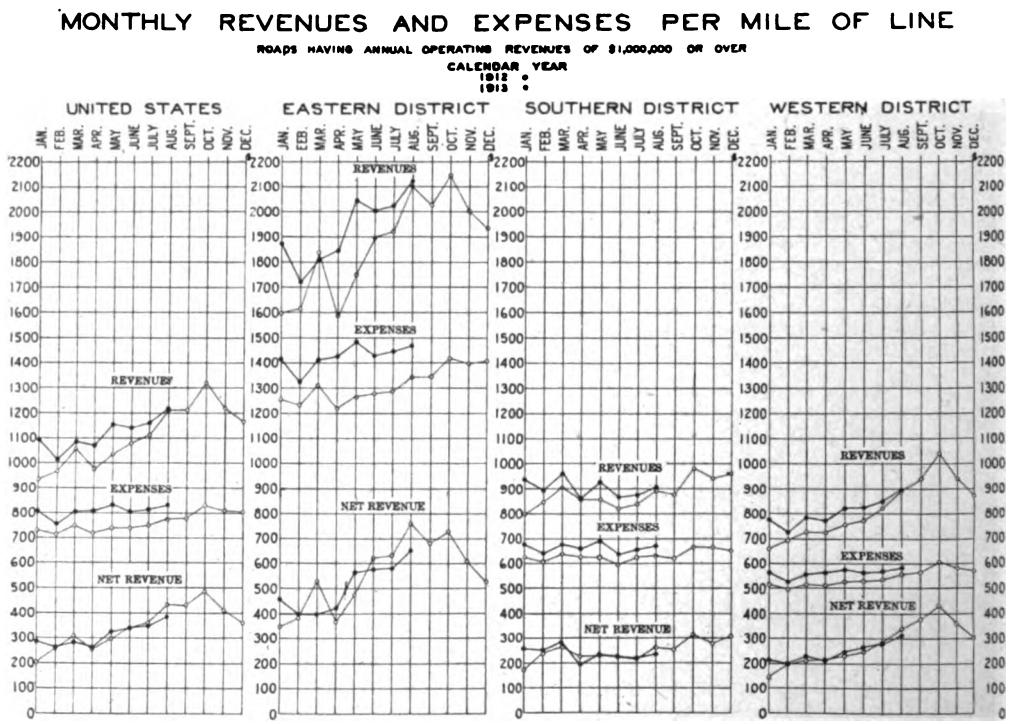
was a gain of $10,312,116 in gross revenues, but attended by a loss of $3,869,083 in net earnings showing that rising expenses were even then a most striking feature. In the year preceding, results for this month were much more encouraging—that is, in September, 1909, there was $27,052,253 gain in gross and $13,585,396 gain in net. In September, 1908, on the other hand, there was $15,299,307 loss in gross, with $4,083,435 gain in net. In September, 1907, the returns were very incomplete, they coming to hand when the panic of that year was at its height. The significant feature is that at that time, also, net earnings were falling behind, though gross was still expanding; stated in brief, for September, 1907, our compilation, though incomplete, registered $13,172,222 increase in gross with $3,594,503 decrease in net."

The Bureau of Railway Economics, in its complete returns for August, which it reduces to a per mile of line basis, and then makes a comparison with returns for August, 1912, shows an increase in total operating revenues per mile of 0.6 per cent, and an increase in operating expenses per mile of 7.1 per cent. Net operating revenues per mile were less by $48.00, or 10.9 per cent than for August, 1912, while those for August, 1912, was 11.1 per cent greater than for August, 1911. The following diagrams graphically illustrate the monthly and cumulative trend of railway earnings during the first eight months of the calendar year.

The Future of Railroad Financing.

By JAMES J. HILL.

IN a recent notable address before the Investment Bankers Association of America at Chicago on October 30th, James J. Hill, vigorously denounced the present tendencies in fi-



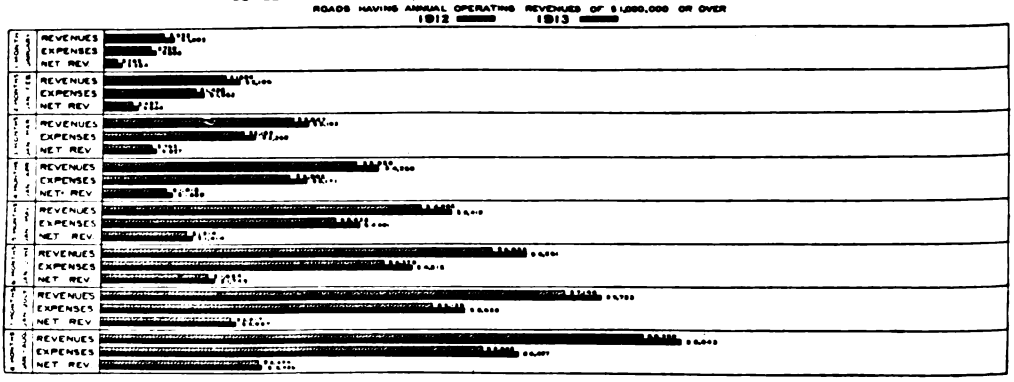


DIAGRAM COMPARING FOR THE INDICATED PERIODS OF THE CALENDAR YEARS 1912 AND 1913
CUMULATIVE REVENUES, EXPENSES AND NET REVENUE PER MILE OF LINE
ROADS HAVING ANNUAL OPERATING REVENUES OF $1,000,000 OR OVER
1912
1913
REVENUES
EXPENSES
NET REV

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nancing particularly with regard to municipal and public bonds. The following paragraphs from this address relate more particularly to the railway situation. Mr. Hill asserts that the methods which have characterized the issuance of railway bonds have been the soundest of all classes. In part he says:

"Without undue preference for the interest to which most of my active life has been given, I think I may say that the railroad bonds of this country as a rule have remained faithful to their trust. For one thing, it is practically impossible to place an over-issue of railway bonds. If a manufacturing or commercial concern liquidates, its property has only current real estate value unless some successor wishes to carry on the same or a similar business. If an industrial enterprise is wrecked by competition that it cannot meet, by a shift in the market for raw materials, by a cessation of demand owing to changed conditions or new inventions, its bonds may fall to a few cents on the dollar; because the intangible values behind them are reduced to nothing, and the tangible can no longer be turned to profitable use. A railroad is differently situated. Its business cannot be discontinued. While it may and does suffer from unjust legislative and other assaults that add to its expenses and subtract from its revenues, it enjoys as a compensation security through the courts against actual confiscation. The road and its belongings will always remain there. They can always be operated. They must be operated by somebody. Therefore the security cannot altogether vanish; and experience has shown that it will eventually bring, under wise management, some return in the most desperate cases.

"So far as the old, established properties, with an unbroken record for payment of interest and dividends, are concerned, there is no security that can compare with them for safety of the principal and certainty of the interest payment. The United States Government itself has been compelled to suspend specie payments; but the best railroad systems of the country went through the stress that drove it to the wall without disappointing investors in them of one dollar when it was due or expected. There never was a bond issue through the centuries since the word first came into use which better deserved to bear the title than the first-class railway bonds that are the favorite investment to-day of the great life, fire and accident insurance companies, of savings banks, of all who make it their first condition that a security shall have full value behind it, pay at maturity, and be readily convertible into cash with the least shrinkage, even in time of public panic and financial demoralization.

"Limitations by law on increase of capitalization are of recent origin. The managements of our railways have, for the most part, financed them voluntarily, so far as bond issues at least are concerned, moderately and wisely. The amount of railway capital outstanding in 1911 was, of official report, a little over $19,000,000,000. Of this, $10,738,000,000 was funded debt, $7,825,000,000 of the amount being bonds. There is no present means of estimating the total money value of railroad property. We do know that it represents the greatest property interest in the country next to the land on which we live and its improvements. It is so far in excess of capitalization that the margin of safety is plainly in view. It is so much farther from the total of the railway bonded debt that the most careful administrator of a trust never guarded it more completely against possible depreciation.

"I showed six years ago that the actual growth of the transportation business called for an immediate investment of at least one billion dollars a year for five years, to catch up with traffic demands. The event proved that forecast under instead of above the mark. The need grows continually with the increase in population and the development of the country. The money obtained by the sale of securities is put into construction and equipment. So we need not be surprised to learn, according to an estimate made by the New York *Times*, that while, in the year ending October 1, 1912, the railways issued stocks and bonds to a total of $23,821,000 less than the year preceding, the industrial concerns issued $362,000,000 more. The remaining class of bonds, those of public utilities, require no separate discussion. Water bonds in most cases stand on the same footing as those of the municipality; gas and electric light bonds are simply a special form of industrials; while street railway bonds resemble those of the steam railways, except that generally a mere franchise instead of an ownership of property is the main guarantee behind them. The creation of public utilities commissions in various states tends to consolidate or standardize all these, so far as their sanction and security are concerned, into a special class of state-approved but not state-guaranteed security.

"This survey and analysis should explain whatever may seem mysterious or discouraging in the recent course of the bond market. In spite of the care with which men who understand and respect the limitations of credit attempt to guard and restrict bond issues, the grand total mounts so fast and the security is so progressively impaired that the investor hesitates. Those who are desperate for capital bid higher. The rate of interest rises. So does the risk. And these results, unhappy for the borrower, unhappy for the lender, discouraging and dangerous for the community, will continue until the country reconsiders and amends its ways. The two noticeable features of the general bond situation are the extraordinary conservation in the increase of the railway bonded debt and the extraordinary recklessness of public authorities and the managements of industrial enterprises, taken as a whole, in forcing out every dollar of bonds that anybody will take, until they must finally be advertised as summer sales and peddled out over the bargain counter. Less spending for purposes that can wait; less borrowing on any terms; and a clear distinction between the different classes of security and instruments of credit, so that each shall make its own appeal and cherish its own value, are the only conditions upon which improvement can be hoped. The investment market cannot know a prosperous activity, except by feverish starts to be followed by still more pronounced reactions, until the immutable laws of credit have been generally recognized and respected.

* * * * * * *

"After all has been said, the main explanation of prevailing conditions in the bond market runs back to the old law of demand and supply. There has been too much spending and borrowing. The individual, the corporation, the municipality is no longer willing to pay as it goes. The future is mortgaged until the interest charge alone absorbs more current revenue than can be spared. This

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is the standing danger, the crowning abuse of credit, from which no age has been free. It has been the cause of every act of currency inflation, always aggravating the evil. Inflation by bond issues in excess is just as dangerous in practice, produces the same effects and leads to the same end. Correct this, and the troubles of the market will be relieved; since credit always adjusts itself automatically to the public need when freed from artificial stimulation or compulsion. Let the present abuse of credit continue, and an abyss of possible suffering and financial distress opens before us. This need not happen. It will not happen if the wiser counsel and the conservative view reassert themselves."

British Railway Earnings.

THE annual reports of the British Board of Trade giving the Railway Returns of the United Kingdom illustrate conditions where a large volume of traffic is moved over relatively short routes. The recently issued report, for 1912, gives the total railway mileage in the Kingdom as 23,441; of which 16,223 were in England and Wales, 3,815 in Scotland, and 3,403 miles were in Ireland. This refers to length of line and does not include second tracks, third tracks, sidings, etc.

The earnings for 1912 amounted to $625,603,000, one half of which came from freight traffic; the other half came from passenger traffic and miscellaneous sources. The average dividend on ordinary capital was 3.45 per cent in 1912, a slight decrease compared with the 3.62 per cent paid in 1911.

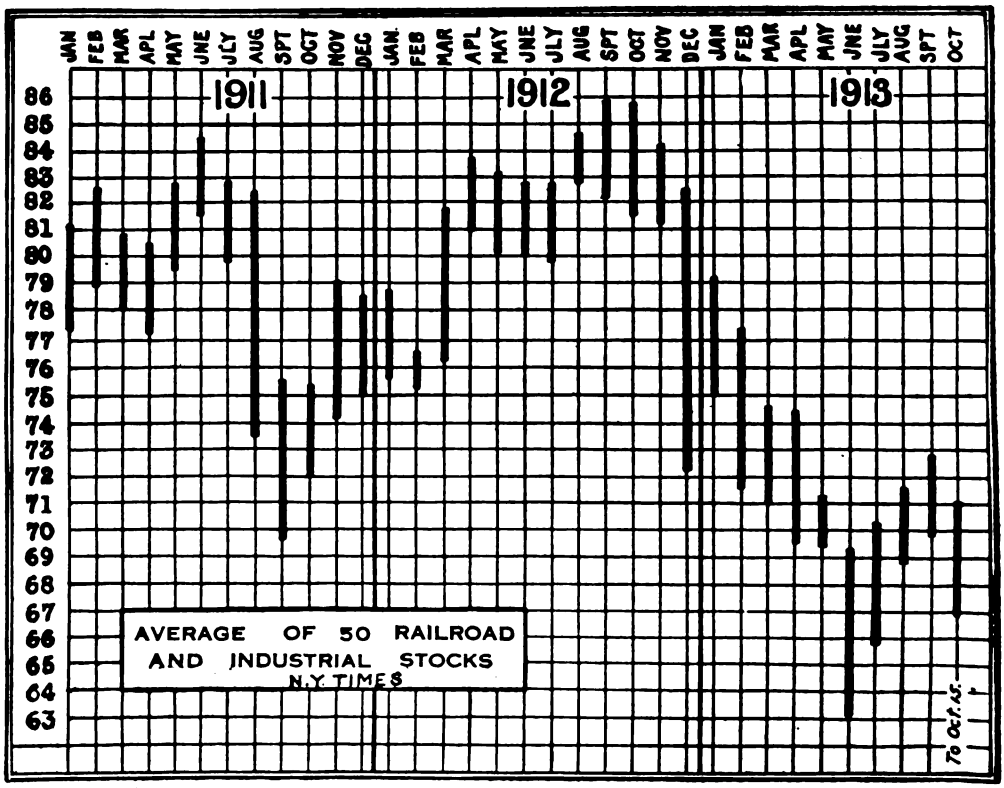
British railways earned in 1912, from traffic, an average of $1.38 per train mile. The average for the United States, where a train carries more, exceeds $2.00. However, trains are much more numerous on British than on American railways and the operating revenue per mile of road in the former country was $24,562, or nearly two and one half times the average traffic earnings per mile of American railway.

Of the $204,047,000 received by British railways in 1912 for passenger traffic, third class passengers paid $167,096,000; season-ticket holders, $24,741,000; first class passengers, $17,675,000, and second class passengers, $5,738,000. Earnings from mails, parcels, excess baggage, etc., amounted to $48,797,000. Third class passengers numbered 1,249,374,000 out of a total of 1,294,337,000 for all passengers except season-ticket holders.

The principal class of freight traffic, "general merchandise" yielded a revenue of $162,711,000; minerals paid $141,980,000; and live stock, $7,003,000; makig a total reveuue from freight of $311,694,000.

Decline in the Average Price of Stocks.

THE following diagram prepared by the New York *Times* graphically portrays the decline in leading railroad and industrial stock which have occurred during 1913. As this chart indicates, the lowest average was reached in June, although October's showing is scarcely


JAN FEB MAR APL MAY JUNE JULY AUG SPT OCT NOV DEC JAN FEB MAR APL MAY JUNE JULY AUG SPT OCT NOV DEC JAN FEB MAR APL MAY JUNE JULY AUG SPT OCT
1911
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AVERAGE OF 50 RAILROAD AND INDUSTRIAL STOCKS
N.Y. TIMES
To Oct. 25

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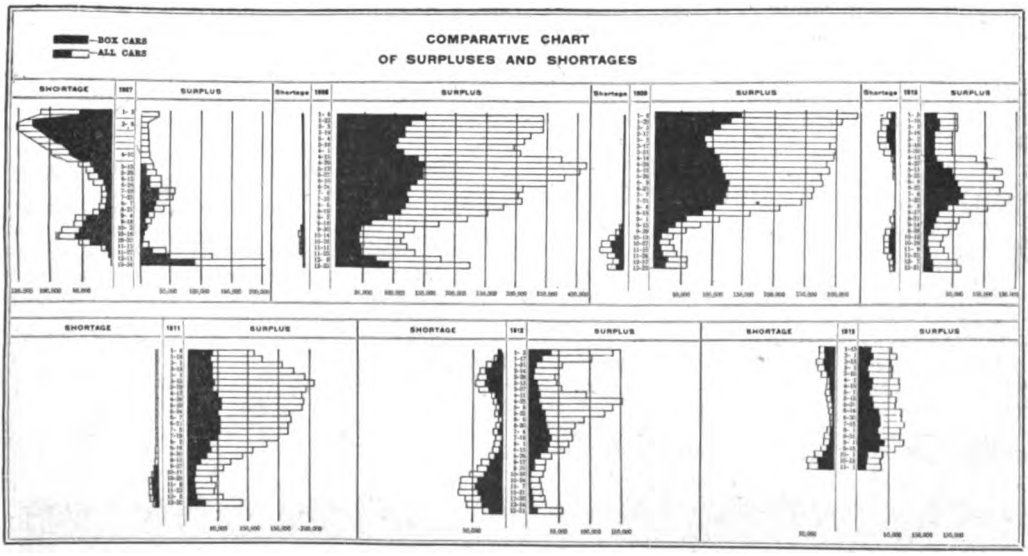
better. With the effect of the tariff still unmeasured and the rapidly increasing cost of railway operations, it is hard to estimate what the future has in store.

Operation

The Car Situation.

THE latest figures of the American Railway Association indicate that the anticipated car shortage will probably not be so severe as feared. On November first, the total surplus of cars amounted to 38,276, while the total shortage was 40,118, making a net shortage of not quite 2,000 cars. The total surplus on October 24, 1912, the nearest comparable date, was 17,289 cars, while the total shortage for the same date was 67,270, or a net shortage of approximately 50,000 cars. These comparisons indicate clearly the improvement in the situation for this year. They also apparently indicate a decline in business as compared with last year, although such a comparison is subject to certain important modifications.

The following comparative chart prepared by the American Railway Association shows greater evenness in the car supply for 1913, than for any of the past seven years:



Statement of Freight Car Balance and Performance for June.

THE Commission on Relations between Railroads of the American Railway Association has issued its statement of freight car balances and performance for June, which shows that the miles per car per day for that month were 24.3 compared with 25.0 in May. The figure for June, 1912, was 24.1. Ton miles per car per day for June were 377, compared with 387 in May. This is an increase of 3.01 per cent over the figure for June, 1912, which was 366. The proportion of home cars on line increased two points to 58 per cent over the preceding month, but was the same as in June, 1912. The per cent of loaded car mileage increased from 68.7 per cent in May to 69 per cent in June. This figure for June, 1912, was 69.3 per cent. The average earnings per car per day for all cars on line decreased eight cents from the figures of the previous month, or to $2.47. The figure for June, 1912, was $2.49.

Second Safety Congress.

THE Second Safety Congress of the National Council for Industrial Safety convened in New York on September 23d. The feature of the Congress aside from the various addresses delivered by men prominently identified with safety work, was the "Safety Man's Round Table." This "round table" constituted a free for all discussion of safety problems and by attending the various sessions much information of a practical nature was obtained by those who are in the vanguard of the greater safety movement. Each day of the Congress was opened with a "round table" meeting.

A number of railway men were present, among whom were H. L. Brownell, of the Safety Bureau of the Chicago Railways, who reviewed what his Bureau has done to minimize street railway accidents in Chicago, by educating the public against accident prevention. Mr. Brownell illustrated his talk with a series of motion pictures to show how accidents are caused by the carelessness of employes and by the public. He also stated that the motion pictures had been shown in the city parks of Chicago twelve times, and more than 50,000 persons have seen how accidents happen and how they may be avoided.

C. R. Richards, chairman of the Safety Committee of the Chicago and North Western, was another railroad man present. He asserted that the safety first movement among railroads was begun by his road and that 68 other railroads have adopt-

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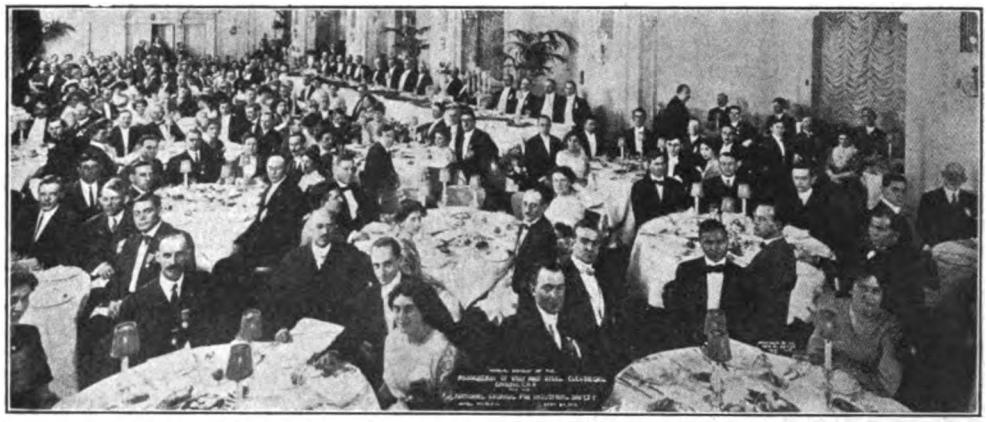


BANQUET OF THE SECOND SAFETY CONGRESS OF THE NATIONAL COUNCIL FOR INDUSTRIAL SAFETY, HELD IN NEW YORK ON THE EVENING OF SEPTEMBER 23RD.

ed similar plans. It is a man's movement he said and it is up to the men to make it a success. Speaking of the results on the North Western, he said that the personal responsibility of employes had been developed to such an extent that not only has there been a sweeping reduction in casualties but there has also been an increase of 12 per cent in the earnings of the road as well. A feature of the gathering was the safety banquet enjoyed by the National Council for Industrial Safety with its parent organization, the Association of Iron and Steel Electrical Engineers. Governor Tener, of Pennsylvania, acted as toastmaster.

Pennsylvania Railroad's Safety First Exhibit.

AN interesting "Safety First" exhibit was recently made by the Pennsylvania Railroad at its New York station. Fully 4,000 visitors, mostly employes, attended the exhibit which continued for a week, beginning on September 26th. The articles shown were numerous and varied from a rusty nail to a whole section of track. Among the specially interesting exhibits were a section of track, a miniature telegraph line, various machines and tools, guarded and unguarded, boards showing nails projecting, protected and unprotected station platforms, barrels and boxes of freight properly and improperly piled on floor and hand trucks, safe and unsafe devices for operating purposes, and hundreds of photographs illustrating the safe and unsafe methods of working on cars, tracks, etc. Not only were demonstrators present to show and to explain the right and wrong methods of handling machinery, tools, etc., but at the evening sessions, practical demonstrations by employes of the first aid to the injured were given. The accompanying illustration gives some idea of the manner in which these realistic demonstrations were made.

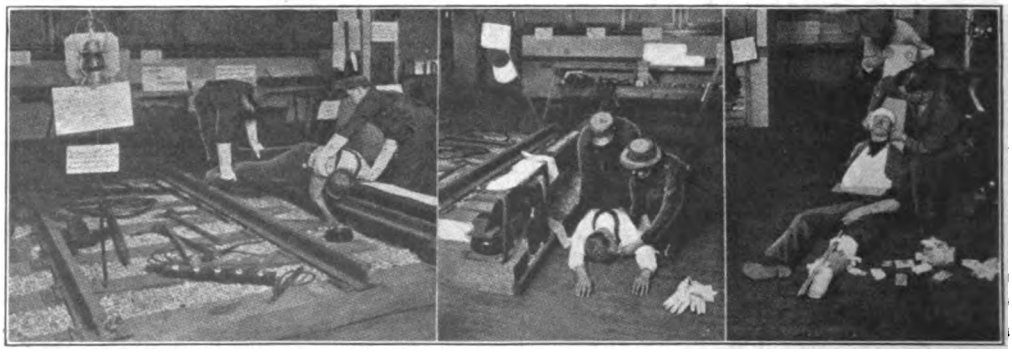
"Don'ts" on the Chicago Great Western.

THE Chicago Great Western Railroad men have entered upon an active campaign along the general lines of safety, and to that end have perfected a safety organization including all divisions and departments and have adopted as their motto, "Safety Always."

The following are some of the "Dont's" which have been adopted:

Don't trespass on railroad properties; it is tempting fate unnecessarily.

Don't step off one track onto another to let a train pass; keep clear of all tracks.



PENNSYLVANIA RAILROAD'S SAFETY FIRST EXHIBIT AT NEW YORK.

In the first photograph employes are seen removing victim from contact with third rail. In the second photograph, victim is being resuscitated from an electric shock, and in the third, employes are demonstrating treatment for burns, bruises, etc.

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Don't stand on or near the track for any purpose whatever.

Don't permit children to go upon the track for any purpose whatever.

Don't attmept to cross a track in front of a moving train; wait until it passes.

Don't attempt to cross a track without first stopping and listening, and looking in both directions to see if a train is approaching.

Don't get on or off trains while in motion.

Don't allow boys to indulge in the dangerous practice of jumping on and off moving cars or trains.

Don't place suitcases, satchels or other heavy packages in racks in coaches as they are liable to fall out and injure those sitting underneath.

Don't throw banana peels, orange peels or other fruit or refuse on floors of stations or cars, out of car windows at stations or in other places where they are liable to be stepped upon.

Competition for Harriman Memorial Medals.

LEADING railroads throughout the country are in the competition for the first award of the E. H. Harriman Memorial Medals, which will be made at the First International Exposition of Safety and Sanitation, to be held in New York City, December 11th to 20th, under the auspices of the American Museum of Safety.

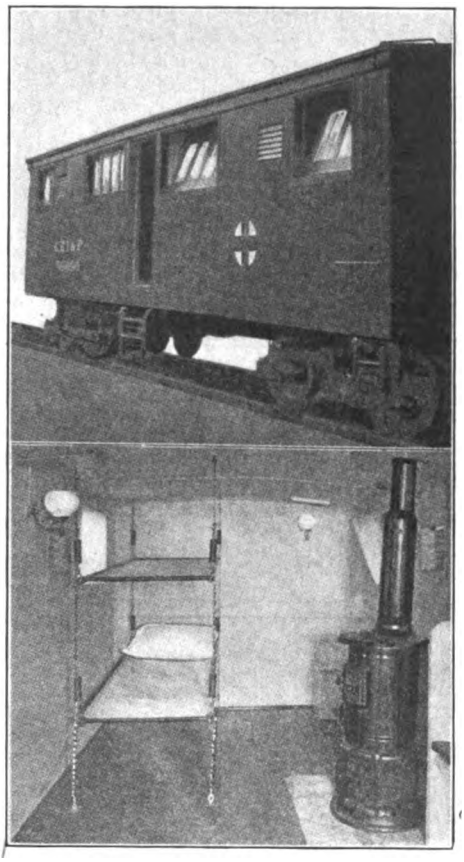
Several notable names have been added to the Jury of Award, including Vincent Astor, Mabel T. Boardman, and John H. Finley. The complete jury now consists of Jane Addams, Vincent Astor, Mrs. August Belmont, Surgeon-General Rupert Blue, Mabel T. Boardman, George B. Cortelyou, John H. Finley, Irving Fisher, Elbert H. Gary, Professor F. R. Hutton, Joseph Johnson, J. B. McCall, president of the National Electric Light Association; Dr. William H. Nichols, John H. Patterson, F. E. Rogers, B. B. Thayer, Lillian Wald, W. T. Wilson.

The Safety Exposition will be the occasion of the annual meeting and dinner of the American Museum of Safety which will be held at the Waldorf-Astoria on the evening of December 12th. One of the speakers will be President Arthur T. Hadley, of Yale. The dinner committee consists of James Speyer, George B. Cortelyou, Judge E. H. Gary, Dr. George F. Kunz, and Dr. William H. Tolman.

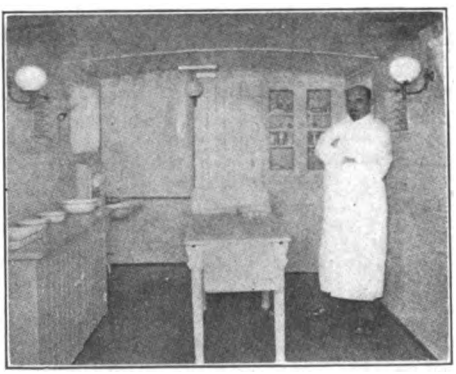
All of the awards will be made on this occasion including the Harriman Memorial Medals, the Safety Exposition Medals, and the annual medals of the American Museum of Safety, consisting of The Scientific American, the Travelers, the Seaman and Rathenau medals.

Rock Island Hospital Car.

IN furtherance of its "safety first" movement, the Rock Island road has equipped a hospital car which it has located at the track elevation work being done within the city limits of Chicago. There are 600 men employed in this work and the car is intended to meet any accident emergency which may arise. The car is 34 feet long, the inside of which has been covered with a cloth and painted with an enamel paint. It is divided into two compartments by a screen partition both of which compartments are shown in the accompanying illustration. Half of the car is provided with an operating table and accessories and the other half with suspended spring beds which are so constructed that they move freely in any direction thereby greatly dissipating any shocks that the car may receive. It is evident that the possibilities of such a car are not limited to the above service.



HOSPITAL CAR FOR THE ROCK ISLAND; SHOWING RECEIVING ROOM CONTAINING SPRING COTS.



OPERATING COMPARTMENT IN THE HOSPITAL CAR OF THE ROCK ISLAND.

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Mechanical

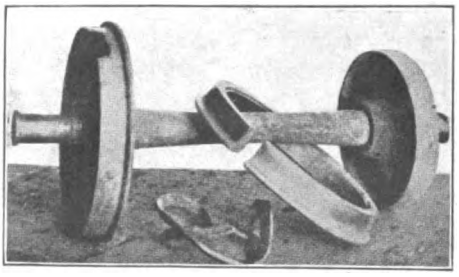
THE CAUSE OF THE STOCKWELL DERAILMENT.

THE chief inspector of safety appliances of the Interstate Commerce Commission has issued a report regarding the derailment of a passenger train on the Chicago, Cleveland, Cincinnati and St. Louis Railway at Stockwell, Ind., on January 7th. This wreck which occurred on a straight track with good roadbed, was caused by the breaking of a tire on one of the wheels of a baggage truck and resulted in the death of one person and injuries to seventy others. At the time of the accident, the train was running at the rate of 55 to 60 miles per hour. Included with the report of the chief inspector, is one by the engineer physicist of the United States Bureau of Standards, to whom the tire was sent for inspection and analysis. His report deals at length with shrinkage strains and thermal cracks, a combination of these, in his opinion, being the cause of the tire rupture.

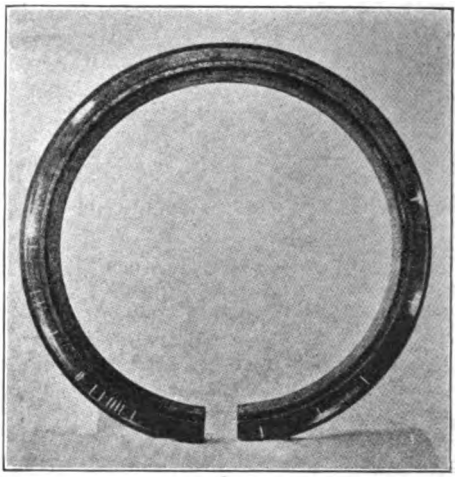
The train was made up of a Pacific type locomotive and seven cars, these being in the order given, a mail car, a baggage car on which the defective tire was located, a day coach, a cafe car, a Pullman and a chair car; all of which, except the locomotive and the mail car, left the rails. The cars of this train received the usual inspections at Cincinnati, where the run originated, and at Indianapolis, where it arrived about three hours after leaving Cincinnati, the wreck occurring about one and one half hours after the last inspection at Indianapolis. No defects of sufficient consequence were detected by the inspectors to warrant laying out the baggage or any other car of the train.

"Events at the time of the wreck," according to the report, "probably occurred in about this manner and sequence. The tire on the right-hand wheel of the forward axle of the forward truck of baggage car fractured radially in one place, was forced off the wheel center into the axle which it encircled, and was carried along by the latter throughout the time of derailment. The fracture of the tire caused the derailment of its truck and precipitated the wreck of the train, the first intimation of which came to the engineer and fireman by the setting of the brakes when the train parted, which occurred between the mail and baggage cars.

"In point of time the fracture of the tire preceded the derailment of the train, but how much earlier is conjectural. Probably it occurred within a mile or a few miles of the place of derailment. The character of the fracture was such that, while it is believed to have been the extension of a thermal crack previously existing in the tire, its development by stresses in the track and complete separation would take place very promptly when the final stage was reached. The shrinkage of the tire upon the wheel center was the chief element of strength, or resistance, which kept it in place when intact. When fractured this resistance was lost, and only the strength of the rivets of the retaining rings would then be available for holding it in place. Successive side lurches of the car, common to all train movements, overcame the strength of the rivets by flange blows, ultimately forcing the tire off the wheel center.



VIEW OF BROKEN TIRE SHOWING INTACT WHEEL, AXLE AND FRACTURED TIRE OF FORWARD TRUCK TO BAGGAGE CAR, TOGETHER WITH BENT RETAINING RING.



ANOTHER VIEW OF FRACTURED TIRE ON WHICH ARE INDICATED BY CHALK MARKS, LOCATION OF THERMAL CRACKS ON OUTSIDE OF TIRE MEASURING ½ INCH OR MORE IN LENGTH.

"The car was built in 1906 and placed in service in September of that year. It had four-wheel trucks, 36-inch wheels with steel tires on steel centers, size of journals, 5 by 9 inches. The original thickness of the fractured tire was 3⅛ inches and it was 29-16 inches thick at the time of derailment. Total mileage made was 111,113 miles, 60 million rotations in round numbers. The car was in the shop in March, 1912, and the tires were then trued up. The contour lines were satisfactory at the time of derailment and it was not a very much worn tire."

The report comments on the method of assembling wheels of this type whereby shrinkage strains are introduced, and states that "the greatest factor in the case, however, is the application of the brakes. The tread is suddenly heated by the friction of the brake shoe and the tire expanded before the center is affected, no doubt causing wide fluctuations in the magnitude of the shrinkage strains. Momentarily the tire may be left with very little shrinkage resistance when

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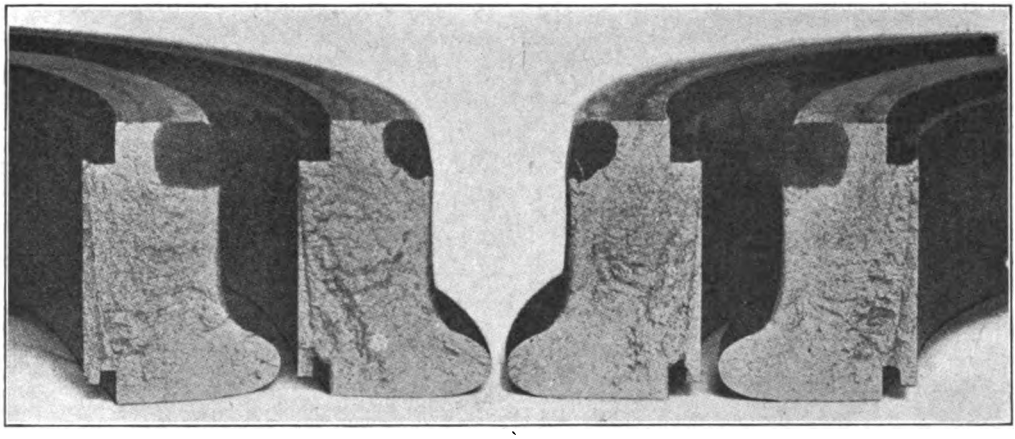

THERMAL CRACKS WHICH DEVELOPED IN THE TIRE WHILE IN SERVICE.

there is a sudden application of the brakes. * * But the sudden heating of the treads of wheels and the attainment of high temperature assumes a more serious aspect than causing the temporary reduction of shrinkage resistance. Thermal cracks in the steel are formed in this manner, the presence of which is a menace to the integrity of the tire. * * * They are caused by the rapid cooling of the intensely heated metal where free contraction is resisted. * * The cause of the wreck of this train was not material defective in its primitive state, but that which had became so apparently from braking conditions."

The conclusions arrived at are:

"That the derailment and wreck was caused by the fracture of the steel tire on the right-hand forward wheel of the forward truck of the baggage car.

"That the retaining rings and rivets in the construction of the wheel did not have adequate strength, shrinkage resistance having been lost, to hold the fractured tire on its wheel center.

"That the fractured tire, insecurely held, was forced off its wheel center by side thrusts usual to train movements, thus precipitating the derailment.

"That the fracture of the tire was occasioned by the presence of deep thermal cracks in the tread, one of which had separated the metal of the tire to a depth of one half its thickness and had an area of over 1½ square inches.

"That these cracks were visible on the surface of the tread and the edge of the outer end of the tire.

"That the formation and extension of these cracks was due to the heat generated under the brake shoe.

"That adequate means should be employed to hold a tire of this type on its wheel center independent of shrinkage resistance.

"That the presence of thermal cracks on the tread of a tire is suffiicent cause for the removal of the wheel from service, which should be done."

AN OBSERVATION CAR ELECTRIC SEARCH LIGHT.

THE accompanying illustration shows an electric searchlight equipment installed on the observation car of the fast mail train operated between the Twin Cities and Chicago on the Chicago, Milwaukee and St. Paul Railway.

This searchlight is 13 inches in diameter and stands on a pedestal 52 inches high over all, taking up 16 inches of floor space on the observation platform. The carbons are ½-inch by 5/8-inch specially constructed for searchlight work. The

EMPLOYING A SEARCH LIGHT ON AN OBSERVATION CAR OF A CHICAGO, MILWAUKEE AND ST. PAUL TRAIN.

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carbons stand horizontally and operate automatically after being focused. The lamp is built to operate on a 60-volt electric current and requires 20 amperes, throwing a stream of light for a distance of two miles. The lamp is mounted on the observation car platform at the end of the train and it is in charge of an experienced operator providing a means by which the passengers on the train can view the scenery after nightfall.

A Rail Inspecting Device.

A GRAND RAPIDS, MICH., man has invented an apparatus by means of which flaws or breaks on the underside of rails can be readily detected. In rail inspection by track walkers, the top of the ball and flanges may

A Device so Constructed with Mirrors as to Permit, by Reflection, an Examination of the Web and the Undersides of the Ball.

be readily examined by a person walking in an upright position, but to examine the web and the underside of that ball is a slow and laborious operation requiring the track walker to assume a stooping posture every few minutes and often at times to crawl upon his hands and knees. This is fatiguing and apt to induce the track walker to shirk or to make a less careful examination than he should.

The device herein illustrated, and which can be passed along the track by a person walking in an upright position, reveals by reflection the sides of the web and the undersides of the ball. It consists of one or more mirrors suitably mounted on a handled carrier by which it can be conveniently moved along the rail with the mirrors in such a position as to permit inspection of that part of the rail not seen from above. In one form the mirrors are held by two solid arms while in another, the device has various adjustments.

As indicated in the illustration there are extending laterally from the saddle four twisted arms, two on each side—having slots engaging upwardly extending arms that are held rigid with the mirrors by means of brass thumb nuts, which clamp the arms securely in any position of angular adjustment. The device is pushed along the rail by the handle that extends backwards at an angle of 30 degreees, while the saddle or frame has depending lugs or flanges ahead and behind which fit loosely to the rail, and to which small pieces of spring steel are riveted so that the shear of the ball of the rail will not hinder the movement of the device.

The device complete weighs about ten pounds. The handle being at the rear and the supporting arms at the ends of the mirrors, it permits the trackwalker an unobstructed view into each mirror at all times.

Vanadium Steel and its Application to Locomotive Construction.

THE Western Railway Club at its September meeting listened to an interesting address by Mr. George L. Norris, of the American Vanadium Company, on the development of the application of vanadium steel to locomotive construction. The growth and extent of its use is graphically shown in the curves of the accompanying chart:

Curve "A" shows the number of new locomotives equipped with vanadium steel parts, built in each year from 1908 up to and including 1912, and the number ordered during the first five months of this year with vanadium steel specified.

Curve "B" shows the percentage of all the locomotives built yearly in which vanadium steels have been used. Analysis of these curves brings out some interesting facts as to the extent to which vanadium steel has come to be applied to locomotive construction.

In 1908, when several of the leading railroads specified vanadium steel parts for test purposes, only fifty-three locomotives were so equipped, or two per cent of the total number built that year. Awaiting the outcome of these tests but little vanadium steel was specified on locomotives built during 1909, as shown by the downward trend of both curves. Evidence of the success of these tests is shown by the marked increase in the specification of vanadium steel for locomotives built in 1910, as shown by the abrupt rise

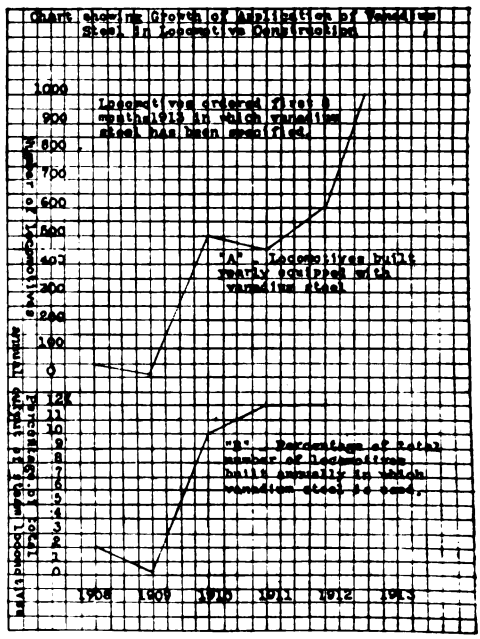
Chart showing Growth of Application of Vanadium Steel in Locomotive Construction.
Locomotives ordered first 5 months 1913 in which vanadium steel has been specified.
"A" - Locomotives built yearly equipped with vanadium steel
"B" - Percentage of total number of locomotives built annually in which vanadium steel is used.
1908
1909
1910
1911
1912
1913

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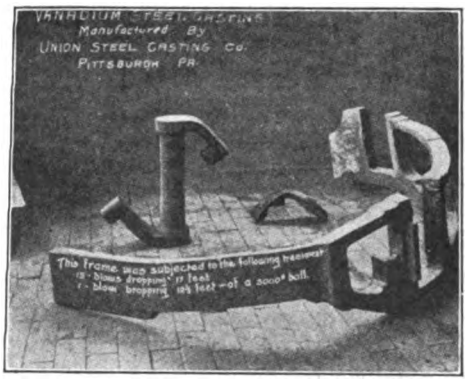

VANADIUM STEEL CASTING
Manufactured By
UNION STEEL CASTING CO.
PITTSBURGH PA.
This frame was subjected to the following treatment
12 - blows dropping 17 feet
1 - blow dropping 15 feet - of a 3000# ball.

VANADIUM FRAME MADE BY UNION STEEL CASTING COMPANY, WHICH WAS BENT UNDER A DROP BY 15 BLOWS AT 17 FEET, AND ONE BLOW AT 15 FEET, WITH A 3,000 POUND BALL, A TOTAL IN ALL OF 810,000 FOOT POUNDS.

in both curves. From 1910 the use of vanadium steel in locomotive construction has been steadily increasing.

The drop in curve "A" for the year 1911 is accounted for by a reduction of 25 per cent in locomotive construction as compared with 1910. This drop is offset, however, by the rise in curve "B" for the same period. Last year over 25 per cent of the locomotives built weighing over 200,000 pounds had vanadium steel parts.

According to Mr. Norris, the earliest application of vanadium steel to locomotive construction was for cast steel frames, a number of such frames being put in service as early as 1907, while to-day there are over 5,000 found in railway locomotives. Failures so far as recorded have been insignificant, being less than one half per cent over all causes, and if failures due to a specially weak point in design or from wrecks or failures to other parts are eliminated, the percentage of failures from vanadium steel is less than one tenth per cent.

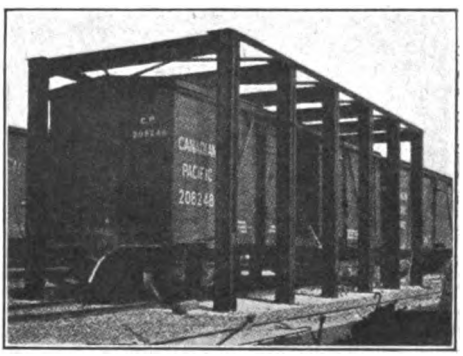
An investigation made a few years ago showed that frame failures constituted at least 20 per cent of the cost of locomotive maintenance. The use of vanadium steel frames, therefore, means a very substantial lowering in maintenance costs, and increase in earnings. Consider the record of vanadium steel frames on three roads that are extensive users, having a total of 1,500 frames in service last May. These roads are the Delaware, Lackawanna and Western, the New York Central and Hudson River and the Southern Railway. The total failures from all causes were nine, and of these six occurred on the Delaware, Lackawanna and Western on a group of eight ten-wheel passenger locomotives, and were due to an admittedly weak point in the design. A slight change in the design was made on the next lot of locomotives of this type and no further failures occurred. Since 1908 practically 80 per cent of the new locomotives on the Delaware, Lackawanna and Western have been equipped with vanadium frames, and in addition many of the old engines have also been equipped.

The experience of the New York Central and Hudson River Railroad has been even more satisfactory as no vanadium steel frames have failed. A bar of vanadium frames was applied to a lot of heavy Pacific type passenger locomotives built in 1908, the others being equipped with the regular carbon cast steel frames. Failures of the carbon cast steel frames began within two years and up to March of this year there has been 35 failures. As the result the New York Central has made vanadium cast steel frames standard equipment for road locomotives.

A Steel Car Straightener Employed by the Canadian Pacific.

IN service the freight cars of steel construction often suffer distortion without serious injury to the material other than the necessity of bending it back into shape. One of the most frequently encountered difficulties with steel equipment in a wreck is that either the sills or the frame become sprung. To make speedy repairs of damages of this characer, the Canadian Pacific Railway has adopted the device shown in the accompanying illustration. The frame shown is in use in the West Toronto shops, and is similar in design, but somewhat larger, than the original one of this type built at the company's Hochelaga Montreal, shops.

The frame comprises a double row of steel columns at 14 feet centres, there being six pairs 7 feet apart. The columns are built up of two 12 by 3-inch channels, 3½ inches apart, back to back. Riveted to each channel web, there is 6 by 3-inch I beam stiffening the column in both directions. These columns are mounted in a concrete base, 17



THE FRAME EMPLOYED BY THE CANADIAN PACIFIC FOR STRAIGHTENING BENT STEEL CARS.

feet wide, and the columns are tied together and diagonally braced at the top. In each column, between the channel backs, there is a cast iron block 8 inches deep, on each side,, the pair being tied together by two ¾-inch bolts. Passing through the pair of blocks is a 2½-inch square thread screw, 24 inches long, with a pitch of two threads per inch. The inner end of the screws have bearing plates for bearing up against any part of the car, and the outer end is squared for a wrench. By means of the ¾-inch tying bolts, the jack screws may be located in position on the column, so that the sills or any part of the frame may be pressed back into position. In cases where the screws are not sufficiently powerful to press the frame back into shape, the practice is to use a jack between the frame column and the member of the car that is to be straightened.

Not only are the members of steel cars twisted

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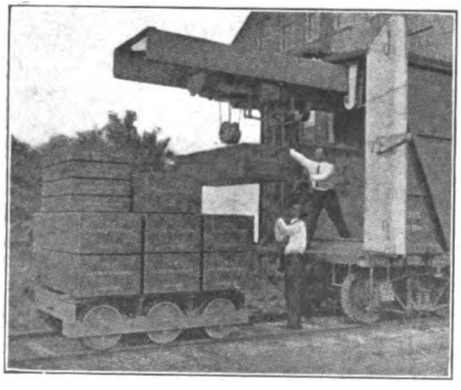
side ways, but it frequently happens that, from an end thrust, the sills are sprung upwards in the centre. To meet this difficulty, provision is made in this straightening frame. Between the end pair of columns, bedded in the concrete base, there are at each end four 1¼-inch eye bolts, spaced 1 foot each side of the rails. In each eye bolt there is a 10-inch ring. To straighten a sill, it is the practice to tie the car down to these rings by passing a chain from the rings over the body bolster or the middle section of the sills. Then, by placing a jack under the ends of the car and jacking up, it is usually possible to bend the sills back.

Scales-Testing Car of the Bureau of Standards.

THE *Engineering Record* for October 25th contains an interesting article by A. H. Emory, Jr., on the scale tesing car of the Bureau of Standards. The equipment of this car was constructed by Mr. Emory, which, as he briefly states, consists of a large number of standard weights and an apparatus for putting these weights out on the track scale as shown in the accompanying illustration.

A crane bridge which can be projected out of one end of the car is equipped with a trolley and hoist. The car carries a motor-driven truck, 90,000 pounds of large standard weights, and 10,000 pounds of weights in 50-pound standards. The crane bridge, trolley hoist, and the truck are all operated from a gasoline motor and electric generator set carried in the car.

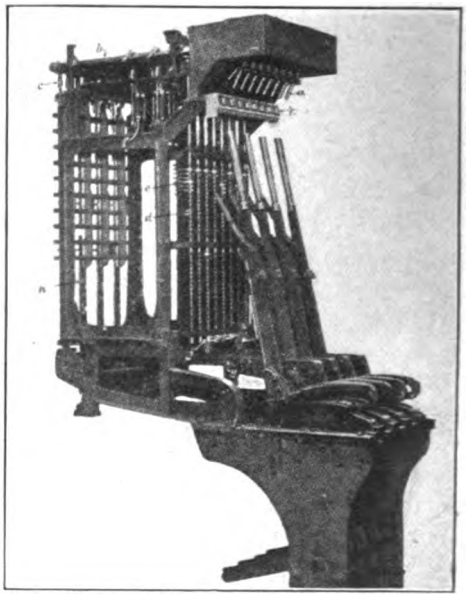
In use the car is placed with the open end near the scale to be tested, the crane bridge is projected, and the truck is lifted out of the car, placed on the rails, run on the scale, scal ereadings are taken, and the truck is run back under the crane.



REAR END OF THE SCALE TESTING CAR OF THE BUREAU OF STANDARDS, SHOWING THE WEIGHTS AND THE UNLOADING DEVICE EMPLOYED.

Electro-Mechanical Locking Frame.

THE Union Switch and Signal Company, of Swissville, Pa., has recently constructed an electro-mechanical locking frame as shown by the accompanying illustration. The electric levers *a* actuate the square shafts *b*, which by means of arms clamped to their ends work the vertical interlocking rods *c*, and also by means of bevel gear rotate the rollers *d*, carrying contact pieces, through which and the contacts



AN ELECTRO-MECHANICAL LOCKING FRAME IN WHICH THE CONTACT ROLLERS ARE DIVIDED INTO UPPER AND LOWER HALVES.

e the current is sent to the signals. The return indication comes in at *f* and automatically completes the stroke of the lever. To the mechanical levers are attached rods *g*, which raise and lower the locking rods *h*, whereby the mechanical levers are interlocked between themselves and with the electric levers.

A feature of this frame is that the contact rollers are divided into upper and lower halves, which can be operated singly or together, or, by means of the link *j*, two contact rollers or halves of adjacent rollers can be worked together in case there is not enough room on one roller for all the contacts required.

Below the electric levers, at *k*, are indication lamps for showing the state of track-circuit sections, signals, etc.

The Apprentice-School of the Chicago Great Western.

THE introduction of the apprentice-school in the Chicago Great Western Railroad shops has replaced the old method which had existed for years and is a means whereby the shop forces are recruited with first class skilled mechanics who have been under a regular instructor on the shop floor and in the shop school during the four years of their apprenticeship.

The rate of pay is based on a graduate scale of wages, advancement being made to the next higher rate at the expiration of each year's service. The apprentice on entering the different trades is supposed to have a common school education and is required to pass an examination which consists principally of problems in mathematics. The school room instructions include mathematics, general shop practice and mechanical drawing, the latter enabling the apprentice to make sketches of the different parts of the locomotive and to readily and correctly read the

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BOYS AT WORK IN THE GREAT WESTERN'S APPRENTICE SCHOOL AT OELWEIN.

dimensions on drawings which are used to a considerable extent in the shop on all classes of work.

The order of instruction in the use of machine tools is standard and adapted to local conditions, the boy being taught how to operate the different machines, they are also taught how to assemble a locomotive. In addition to this the student is allowed three months' experience in the mechanical engineer's office which gives him a broader view on railroad work along mechanical lines.

The apprentice who is attentive and grasps the situation so as to get the benefit of instructions and full opportunity given him by access to the school, has a good advantage over one who has learned his trade in the shops and has to pick up what he can from observation and fellow workmen.

There is no question but what an apprentice in the Chicago Great Western Railroad shops at Oelwein has as good opportunity to learn every detail connected with the various trades as is to be found in any of the railroad shops.

There is at the present time an enrollment of 45 apprentices of the various trades and each apprentice after completing his course satisfactorily is presented with a certificate signed by the proper officials of the company, which serves as a valuable recommendation anywhere.

The apprentices are divided into classes of eight each and there is one session held each working day.

Railroad Coach Lighting.

ACCORDING to the *Electrical World* the extensive and carefully conducted tests on day-coach lighting made during the past summer under the auspices of the committee on illumination of the Association of Railway Electrical Engineeers and reported at that Association's recent convention confirm previous results of tests on the lighting of various interiors and afford a striking commentary on the inefficiency of certain very common methods of steam railway car lighting as compared to the efficiency of other methods which are better in appearance and more comfortable to the passengers. With test results reduced to an equal basis of 66.6 lumens per running foot of car, there was a difference between the systems tested ranging from 2.42 foot-candles for the most efficient translucent reflector equipment down to 1.03 foot-candles for the least efficient of the lamp equipments tested.

It is gratifying to know that the bare lamp which obtrudes itself so atrociously in the vision of passengers on many cars is next to the bottom of the list in efficiency. Since it is both inefficient and uncomfortable, railway managements can no longer have excuse for continuing its existence. The standard square diffusing shade regularly used in sleeping cars also makes a very poor showing with only 1.35 foot-candles. This equipment has always afforded a striking example of lack of attention to illuminating engineering with consequent loss of money to the operating company and a loss of illumination for the use of the passengers in such cars. Clear prismatic reflectors head the list at 2.42 foot-candles, with heavy density opal reflectors a close second at 2.14 foot-candles. The latter, on account of their ease of cleaning when of proper design, should find extensive use in railway car lighting. As might be expected, the highest efficiency was always obtained with bowl-shaped reflectors open at the bottom. All attempts to close the bottom of such reflectors with diffusing bowls have been unsatisfactory on account of the decided loss of efficiency.

The tests show that there is no practical difference in the measured illumination obtained with the center-deck and side-deck systems of lighting. In the center-deck system the lamps are placed in a single line along the center of the car. In the side-deck system one row of lamps is placed over each row of seats. However, the center-deck system has important advantages in lower cost of lamp renewals and cleaning and the use of larger and more efficient lamps. To avoid bad shadow effects it is found that lamps must be spaced opposite every two pairs of seats with either system where direct lighting is employed. With indirect or semi-indirect lighting, which, of course, is applicable to only the center-deck system, the spacing can be every three seats. It is interesting to note that both these latter systems in the tests gave higher efficiency than did the bare lamp. Thus, the most comfortable system for the eye under these specific conditions consumes less electricity than the most uncomfortable system.

Electrical

The Future of Steam Railway Electrification.

ON November 11th, Mr. G. Percy Cole, electrical engineer of the Canadian General Electric Company of Toronto, Ont., addressed the members of the Canadian Railway Club, on the conservation of natural resources through the electrification of railways. Of particular interest are Mr. Cole's conclusions that there will be no general electrification of American railways except by a process of comparatively slow development. On this particular point he said:

"In America, there is no evidence that the heads of our steam roads are contemplating any general electrification in the near future; for it is obvious that in these days of railroad regulation and difficult railway finance, unless we have a definite answer to the question, 'Will it pay?' very little progress can be made. But it is right at this point, however, that it is necessary to consider the subject in its very broad-

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est aspects. In no line of human endeavor is there such building for the future as in railroading. Otherwise we would not be witnessing the present increased activity in the application of the electric locomotive to steam railway properties. If in the past, the electric locomotive has made inroads into the steam field, in connection with tunnels, terminals and mountain grades, it has been because it was the logical machine to adopt. The saving may not be apparent in lower operating costs, but may result from greatly increased capacity, the elimination of water stations along the line, the reduced steaming capacity of the steam locomotive in very cold weather, just at the time it requires its maximum power, the increased speed of trains over single track mountain divisions, the improvement in conditions of travel due to the elimination of all smoke, the many incidental advantages in having electric power available at all points of the system, and in many other different ways that will suggest themselves to the seasoned railroad man. The point it is desired to bring out here, is that the interest in the electrification of railways is fully justified, and that each case should be considered on its merits. For many years to come, for trunk line service, the steam locomotive will be used; but in building for the future, it will be wise to thoroughly investigate electric operation. We all know that in years gone by, many trolley lines have been built much in advance of their commercial justification; but the result has been a tremendous aid to the rapid extension and development of the communities served by these lines.

"Leaving aside the economic feaure, there are several important reasons why we have not seen electric operation more generally adopted on steam lines. In the writer's opinion, the foremost reason is the fact that in the modern steam locomotive we have a mighty good thing. On the whole, it is very reliable, and in what business is greater reliability required than in railroading? Everyone knows it is pretty nearly as difficult to change a Canon of the Church as to introduce some new feature on railroad rolling stock. The attitude is reasonable, and natural, as the responsibilities involved in any radical change are very great indeed.

"Another reason is the fact that for the last few years there has been a discussion going on in the various Engineering Societies as to the best system to use; leading outsiders to believe that there has been a much greater lack of agreement in regard to systems and standards than is really the case. However, as the economic range of application of each system is becoming better known we are now emerging from the chaos of five years ago to a clearer understanding of the relative merits of each system. The actual operating results from existing terminal installations has been a large factor in clearing up debatable points."

Electric Locomotive in Freight Service.

THE Omaha, Lincoln and Beatrice Railway received during the month of March, 1912, a 26½-ton Baldwin-Westinghouse electric locomotive equipped with four Westinghouse No. 101-K, 35 H. P., 500-volt, non-commutating-pole railway motors and HL unit switch control. Shortly after this locomotive was placed in service it was ballasted up to 31½ tons. The ballast was made up in the usual form of long castings bolted to the underframe into the pocket provided for this purpose in the construction of the locomotive. Beside the motor and control equipment, there are pneumatic sanders, engine bell ringer, and Westinghouse A. M. M. brakes with emergency features and in addition four-rail carrying hooks, two on each side with a capacity of three rails each. This allows for the carrying of both a small amount of rails and ties, to take care of the light repair work, and heavy repair work material can be carried on the work train hauled by the locomotive. By this arrangement the chances of tying up expensive equipments while loading and unloading were eliminated. That is no passenger rolling stock used to haul the work train as is often the case on some roads, and the locomotive can proceed with the hauling of the other freight cars while the flat car is being loaded or unloaded with material or freight.

This locomotive performs on the average of about six hours of work per day in switching and in handling freight. During the construction season the locomotive works approximately eight to ten hours per day, and up to the present time there have been no repairs needed on the locomotive and it has seen over one year of service.

The management of the Omaha, Lincoln & Beatrice Railway Company have used this locomotive in an advertising manner. For, in view of the fact that the locomotive was ready to

THIRTY-ONE AND ONE-HALF TON BALDWIN-WESTINGHOUSE LOCOMOTIVE AND TRAIN.

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handle freight, and provide service for plants located along this line they were able to induce manufacturers to locate their plants at different points on the system, whose patronage it would not have been possible to have otherwise secured.

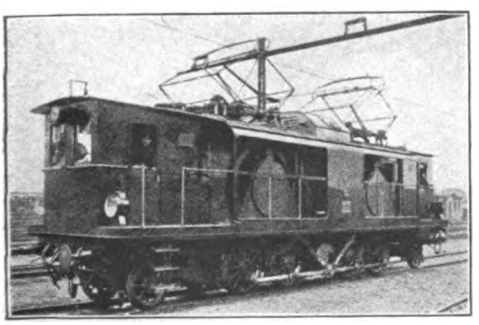
While at present the freight service is not sufficient at all times to keep the locomotive constantly at work, there seems to be a steady increase in traffic, and it may be of interest to know that this road, while only eight miles long, handles 2,000 to 2,500 loaded cars in and out per year. Thus it may be seen that the freight business on this line makes up a very large percentage of the total revenue. At present the service performed by this locomotive is to transfer carload and less-than-carload freight over the eight-mile line between Lincoln, Nebr., University Place and Bethany.

This electric road also uses the locomotive to take care of an express trailer; thus by so doing express baggage and less-than-carload goods can be handled along this line. Thus, from the above it may be seen that this locomotive is used in switching, freight, express and baggage service; and also for construction work.

New Electric Locomotive for Prussian-Hessian State Railways.

THE "Electric Railway Journal" for November, contains a description of the latest locomotive furnished by the Siemens-Schuckeret for the Dessaw-Bixlerfeld single-phase electrification of the Prussian-Hessian State Railways. This locomotive is of the combination freight and passenger type shown in one of the accompanying illustrations. This locomotive is designated as type 1-D-1, which means that it has one leading axle, four driving axles and one trailing axle. The driving axles are operated from two floor-mounted motors by means of crank rods, which are connected through the crank pins of a single jack-shaft. Each pair of driving wheels is on a separate truck. This locomotive is capable of drawing a train of 1,200 metric tons at 21 m.p.h., or one of 700 tons at 34.7 m.p.h. For passenger service this locomotive can be operated at a speed of 55.8 m.p.h. The tractive effort at the circumference of the driving wheels is 39,600 lb. momentarily at starting and 18,040 lbs. for one hour.

The superstructure of this locomotive is one of its most striking features, since only the end cabs for the engineer are fully inclosed, enough of the sides being left open to expose the motors and the sides of the transformer to the open air. The motors, however, are protected by means of sheet-iron covers, which may be raised for inspection whenever desired. In addition to the cooling effect of the open-side construction, special provision for the commutator is made by means of a ventilator. It will be noted also that a louver is built in the roof directly over the water-cooled transformer.



SEMI-ENCLOSED LOCOMOTIVE OF THE DESSAU BITTERFELD LINE.

The high-tension oil switch is operated with compressed air. The control apparatus includes a main switch for each motor and two reverses. These switches are operated from a low-voltage control circuit. Speed control is attained through the potential regulator illustrated. An unusual feature of the locomotive outfit is an electrically heated boiler for use when passenger trains are hauled.

Sub-Station Equipment of the Kansas City, Clay County and St. Joseph Railway.

THE dream of years of interurban promoters for high-speed, short-route electric line between Kansas City and St. Joseph, Mo., has been finally realized by the completion of the Kansas City, Clay County and St. Joseph Railway. This road is located in that part of the Central West which has been recognized one of the most desirable and during the last ten years

EXTERIOR VIEW OF TRANSFORMER SUBSTATION.

at least ten interurban lines have been projected, —but all failed due principally to construction difficulties and high cost of construction necessary to furnish a road able to compete with steam roads. However, the promoters of this line were especially fortunate in successfully overcoming these difficulties.

The road is built in two branches, one from Kansas City to Excelsior Springs and the other from Kansas City to St. Joseph, each having a length of 28.35 and 52.42 miles respectively. The Kansas City terminal of the railway company is located at Thirteenth and Walnut streets in the heart of the retail, theatre and hotel district.

TRANSMISSION AND DISTRIBUTION OF POWER.

This 1200-volt direct-current interurban system is supplied with power purchased from the Metropolitan Street Railway Company, Kansas City, generated at the Third and Cherry streets power plant at three-phase, 25-cycles, and 6600 volts alternating current. The Interurban has contracted the power for twenty-five years.

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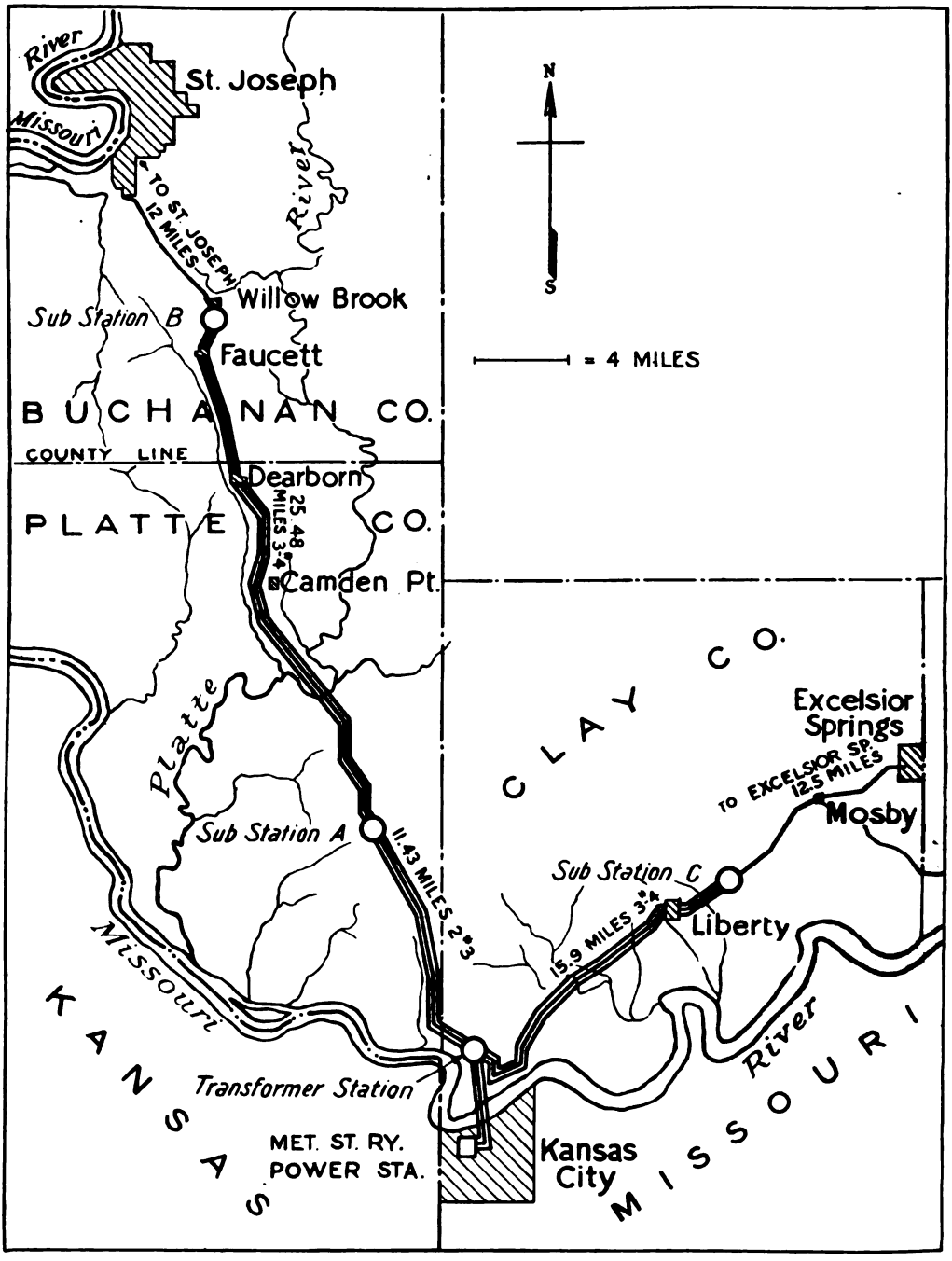

The Kansas City, Clay County and St. Joseph Railway, a High Speed, Short Route Electric Line Between Kansas City and St. Joseph. The Road is Built in Two Branches—One from Kansas City to St. Joseph, and the Other from Kansas City to Excelsior Springs, the Former Being Fifty-two Miles in Length and the Latter Twenty-eight.

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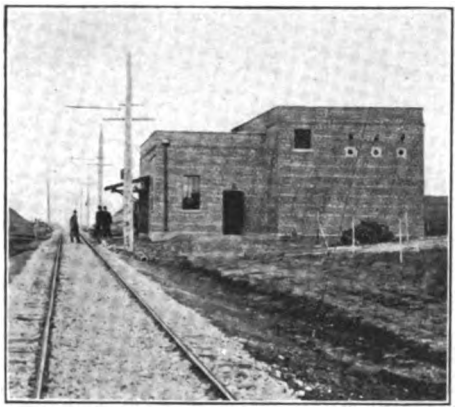
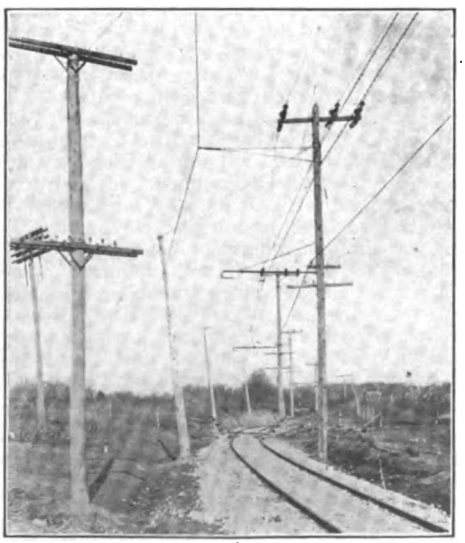


TYPICAL ROTARY CONVERTER SUBSTATION.

Over the pole line of the Union Depot Bridge and Terminal Company, the power is transmitted from the power house to the railway company's transformer station located in North Kansas City at the junction of the two divisions of the road. The 6600-volt current is stepped up to 33,000 volts at this point and delivered to the Kansas City, Clay County and St. Joseph Railway Company's transmission lines.

TRANSFORMER STATION.

Thoroughly fire-proof construction is used throughout the transformer station thus making it possible to secure a low rate of insurance. The station is 36 feet square over all and is two stories high. The first story is divided into a dispatcher's office, trainmen's room, toilet and bath room for the trainmen. Also, transformer compartments, while the second story is given up to the switch room. The walls of the building are of No. 1 kiln-run hard common brick, supported on a concrete foundation, the bricks being laid with American bond with six stretchers between the header course. The walls are capped with tile coping. Steel doors are used for all openings.

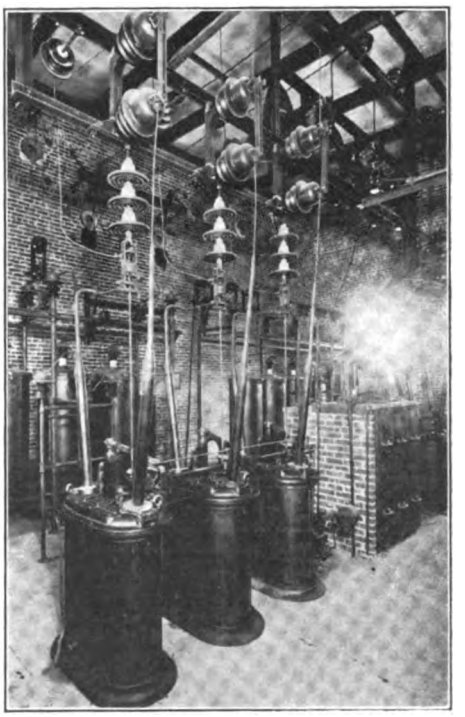


VIEW SHOWING CATENARY LINE CONSTRUCTION.

The floor of the first story of the transformer station is of concrete, 4 inches in thickness, laid on a foundation of 6-inch broken stone well rammed into place, with the exception of the floor in the transformer compartments, which is 6 inches in thickness, carried on a 9-inch broken stone foundation. The heavier floor at this point is necessary to support the transformers.

The floors in the second story are of the ferrolithic type of flat construction, the reinforcement being unpainted No. 4 gage with one-half-inch corrugation. The roof is also of the ferrolithic type, the reinforcement being No. 24 gage with one-half-inch corrugations, and is water-proofed with a five-ply tar and gravel roofing.

The design of this transformer station includes a very interesting feature—the transformer compartments. Each of these compartments measures 9 feet by 10 feet with a height equal to that of the first floor and are divided from one another



HIGH TENSION SWITCH ROOM OF THE TRANSFORMER SUBSTATION.

and the remainder of the building by fireproof walls that have no openings. Entrance to each compartment is through an 8-foot by 11-foot steel door opening from the outside of the building. Ventilation for each compartment is secured by a hinged ventilator and by metal framed windows with gratings at the top of each compartment.

The main electrical equipment of this transformer station consists of three Westinghouse 750-kva., oil-insulated, self-cooled, single-phase, 25 cycle, 6600 to 33000-volt transformers with necessary switchboards and switching apparatus. Also a Westinghouse 5 kva., type SK, single-phase, 25 cycle, 6600-220-110-volt transformer supplies the 110-volt power for lighting the transformer station and the shops, and the 220-volt current for the shop machinery.

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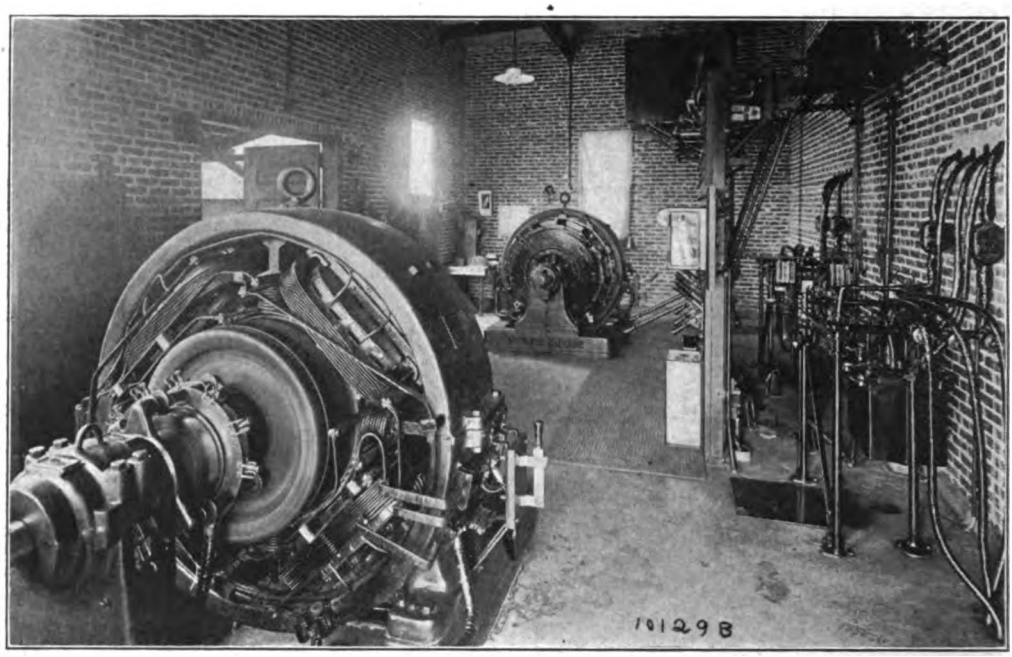

ROTARY CONVERTER SUBSTATION SHOWING TWO 500 KW., 1200 V., D. C., 25-CYCLE, COMMUTATING-POLE ROTARY CONVERTERS.

The switchboard is composed of one panel in two sections, mounted on an angle-iron frame and located on the ground floor in the dispatcher's office.

SUBSTATIONS.

There are three substations on this system for converting the high-tension 33000-volt, 25-cycle, alternating current to 1200-volt direct current, one on the Excelsior Springs division and two on the St. Joseph division as shown in the accompanying map. The construction of the substation buildings is very similar to that of the transformer station. These buildings have a ground plan 43 feet 6 inches by 41 feet and are divided into two divisions, by a brick fire wall, whose openings are protected by steel doors. In the larger of these compartments are installed the transformers, electrolytic lightning arresters and auxiliary apparatus, while the rotaries and switchboards are installed in the smaller compartment. The substations are all one-story buildings.

EQUIPMENT.

The main equipment of each substation consists of two Westinghouse 500 kw., 1200-volt, 750 r.p.m. self-starting from A. C. side, commutating-pole rotary converters These rotaries are insulated for and can be operated at 1500 volts. This high-speed instead of 500 r.p.m. was chosen because somewhat better efficiencies are obtainable at all loads and a more stable commutation at heavy overloads. With a six-pole rotary converter operating at 500 r.p.m. it is not possible to place the brushes as advantageously as with the four-pole rotaries at higher speed. The space between the poles on the 750 r.p.m. four-pole rotaries is greater and allows for a more advantageous armature winding for the high-voltage than can be obtained on a 500 r.p.m. rotary. This is due to the fact that a greater number of commutator bars can be employed with a correspondingly average reduced potential difference between bars, thus permitting a more advantageous use of commutating poles. Heavier overloads can also be carried by four-pole rotaries due to the more advantageous proportioning of the machine, so that overloads up to 200 per cent of the rated capacity of the machine, or three times the full load current of 416 amperes, for swinging periods of twenty seconds without undue heating or injurious sparking could be guaranteed.

In each substation there is a switchboard composed of black marble mounted on angle-iron frames and consists of six panels—two rotary, two feeder and two negative bus banels.

The high-tension buses are run in in iron pipe mounted on insulated pipe-frame brackets. Two banks consisting of three Westinghouse 185 kva. O. I. S. C., single-phase, 25-cycle, 33000-to 730 volt transformers are installed in each substation. Auxiliary substation equipments in the transformer compartment includes Westinghouse type A electrolytic lightning arresters complete with horn gap disconnecting and charging device for use on 33000-volt circuit with underground neutral; type D choke coils, 35000-volts, type M disconnecting switches, 44000-volts; type GA oil circuit breakers, three-pole, single throw, hand operated, with distant mechanical control and 44000-volt overload automatic inverse time limit relays.

OVERHEAD CONSTRUCTION.

The trolley-wire, three-phase transmission line, one telephone circuit and the feeder cable are all carried on by one pole line, and also, space is allowed on the cross arms for signal wires. The design of the overhead construction is such that the road may ultimately be operated at 1500 volts

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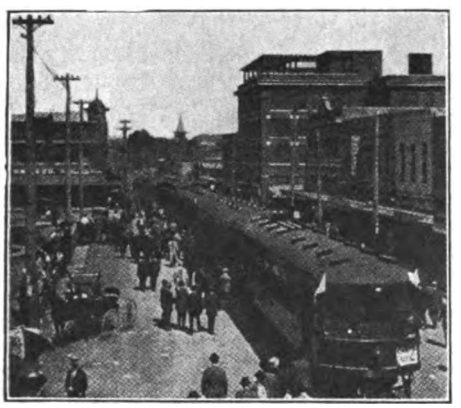
D. C. with 1200 volts D. C. for initial operation. In general five-point catenary bracket construction is used, span construction being employed only on long overhead viaducts and bridges, also for short distances in cities. Westinghouse flexible catenary hangers and curve pull-offs are used.

OPERATION.

The rolling stock consists of 27 cars. A forty-five minute headway is maintained on the Excelsior Springs division and a seventy-minute headway on the St. Joseph division. Trains are usually composed of one car and on some occasions two-car trains are operated. No. 0000 B and S gage, hard-drawn standard grooved copper wire having a tensile strength of 46,500 pounds per square inch is used for the trolley.

New Interurban Line for Southern Texas.

THE Southern Traction Company of Dallas, Texas, opened its new 150-mile interurban line between Dallas and Waco and between Dallas and Corsicana on September



PART OF EIGHT TWO-CAR TRAINS ON THE NEW ELECTRIC LINE OPERATING BETWEEN WACO AND DALLAS, TEXAS.

30th. Hourly service is now maintained between Waco and Dallas and between Corsicana and Dallas. Both local and limited service is maintained. The schedule between Dallas and Waco of 97 miles is four hours by limited train. The equipment consists of twenty-two motor cars of semi-steel construction with a seating capacity for 56 passengers each. The track is laid of 80-pound A. S. C. E. rail. Six substations are employed, the power being supplied by the Texas Power and Light Company's plant at Fort Worth.

The First Diesel Locomotive.

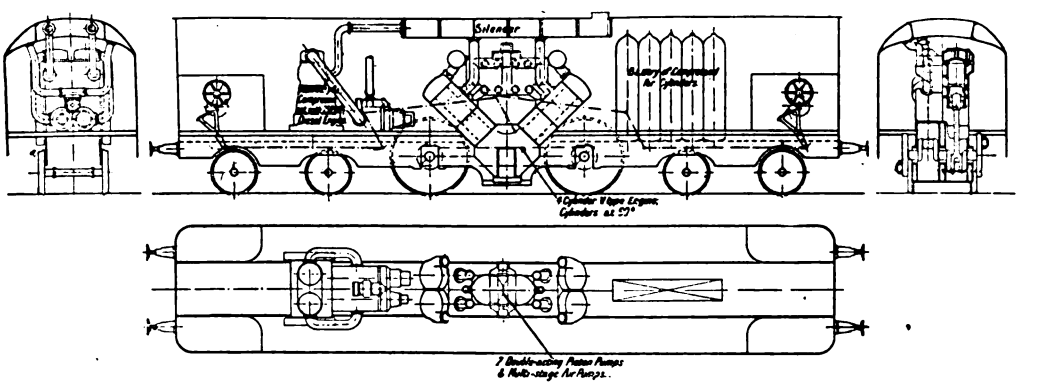
THE Central Railway Department of the Prussian-Hessian Railway, of Berlin, has recently received a locomotive operated by the Diesel oil engine. Dr. Rudolph Diesel, the inventor of these engines, a short time ago, it will be remembered, mysteriously disappeared from an English Channel steamer and his body was later recovered at the mouth of the River Scheldt. It is to be regretted that he could not have lived long enough to have seen the final triumph of his ingenius motor by its adaption to railway traction on a large scale.

The Diesel engine is an internal-combustion motor like, in a sense, the ordinary gasoline engine of the automobile, but unlike it in that it has no explosion motor. The vaporized fuel is not ignited suddenly in the cylinder by an electric spark but is consumed more gradually under the heat generated by air compression.

At first it was thought to be adaptable only to small forms of standard engines, but by constant development it has now reached a point where it can be used either on land or at sea for the propulsion of railway trains and ocean vessels. The following diagram shows the general arrangement of the locomotive recently purchased by the Prussian-Hessian State Railways.

A New Californian Electric Interurban Railway.

THE completion of the Oakland, Antiock and Eastern Railway gives California a new and strictly modern interurban electric railway between Oakland and Sacramento. The traffic which the road will develop, will receive a service about equal to that of a standard steel railroad, the equipment being heavy and built for high speed. The road opened on September 3rd, and the express schedule which is being maintained between these two cities is three hours and fifteen minutes for a distance of 93 miles, an average of 28.6 miles per hour, including the passage by ferry across Sacramento Bay. There is a section of heavy grade just east of Oakland, thirteen miles in length



General Arrangement of the Sulzer-Diesel Locomotive.

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where the running time is only about 25 miles per hour, but on the 20 mile level near Sacramento, the speed reaches from 50 to 60 miles per hour.

The track is laid with 70-lb. titanium steel rails, and an approved automatic block signal system is installed. In the heart of the city of Oakland the road has a well-equipped freight and passenger terminal. The rolling equipment consists of steel day coaches and parlor-buffet observation cars, all fitted with multiple unit control of operation in trains. The foregoing are motor cars, but a few trailers are also provided. The accompanying illustration shows the type of electric locomotive employed in the freight service, utilizing also in that connection standard steam railroad freight cars. One division of the road, in the Morangua Valley, has been in operation for about a year, and a considerable freight business has developed there.

AN ELECTRIC FREIGHT LOCOMOTIVE ON THE OAKLAND, ANTIOCK AND EASTERN RAILWAY.

The overhead work consists of the familiar type of catenary suspension. Direct current at 1200 volts pressure is supplied in the trolley wire. The power comes from previously-operating hydro-electric power stations in the vicinity.

Terminal Improvements

New Spokane Station.

THE following perspective view of the new Spokane (Washington) station being built by the Oregon-Washington Railway and Navigation Company, gives some idea of the attractiveness and magnitude of this improvement which involves, including the freight as well as the passenger terminals, an expenditure of approximately $3,000,000 in addition to the $4,000,000 already spent for right-of-way. The passenger station is, of course, the feature of greatest general interest and is being built jointly with the Chicago, Milwaukee and St. Paul. When completed it will occupy an entire block, its dimensions being 300 feet long by 58 feet wide and four stories high. The building alone will cost well over half a million dollars and will compare favorably with most modern railway stations. The French renaissance type of architecture is being employed and the main building will be of burlap brick in pleasing design with the entire front of the first story of cream colored stone having a granite base surmounted with pilasters in front of the main waiting room and supporting a heavy stone cornice.

Four large entrance ways surmounted by a large ornamental copper glass-covered marquise provide access from Trent avenue to the large ticket and entrance lobby 168 feet long and 33 feet wide, with richly colored faience tile walls and mosaic floor. In the center of this room will be located the railroad and sleeping car ticket offices with telegraph and public telephones on each side. A direct entrance to the parcel and baggage checking counters will be immediately adjacent to the ticket office.

A passageway also leads from directly in front of the baggage and parcel checking counters to the street, and to carriages and hotel buses. The dining and lunch room is located at one end of the ticket concourse. At the opposite end is a barber shop with a stairway and elevator to the offices above.

NEW SPOKANE, WASH., PASSENGER STATION.

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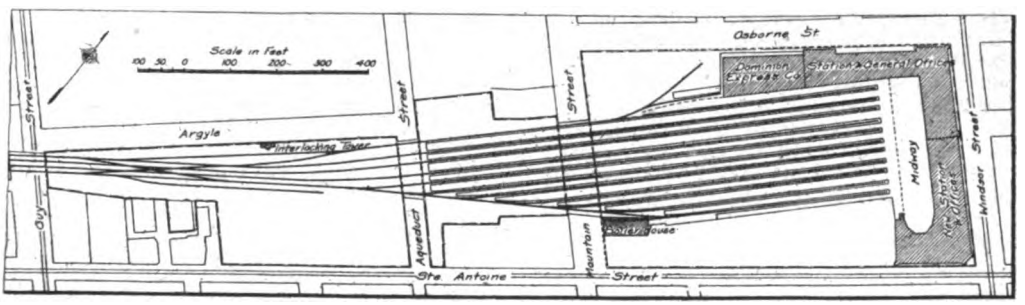
Canadian Pacific Terminal Improvements at Montreal.

THE "Canadian Railway and Marine World" for November contains an account of the remodeling and expansion of the Canadian Pacific Windsor Street Station at Montreal, which is now nearing completion. The trackage arrangements have been completed, the layout at present in use being shown in the accompanying plan of the station and terminal. All the portion of the station and office building south of the division line shown is new. The ground floor is being used for waiting rooms, restaurant, etc., and the other floors for general and local officials' offices. In the old layout, all the portion of the property south of the division line, through the new and old parts of the station, did not belong to the railway, so that all the terminal facilities were to the north of this line. In the former arrangement, there were six station tracks, all projecting into the station building about 40 feet further than in the new arrangement, the latter giving greater concourse accommodation. All the station tracks branched off from the main line just west of Aqueduct Street, with none of the station tracks of a greater length than 900 feet.

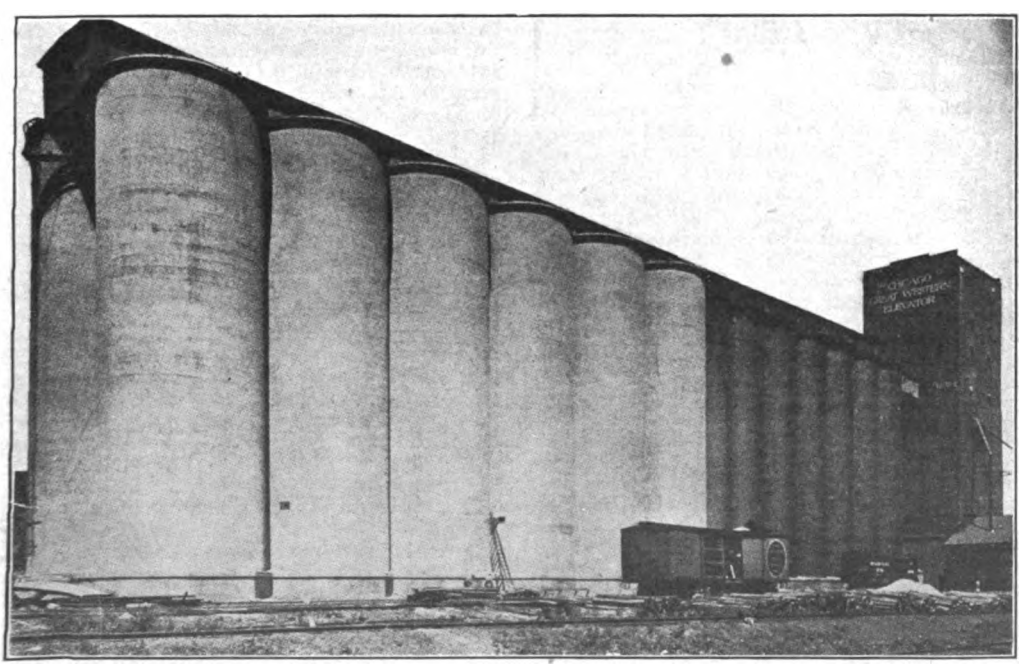
In the arrangement shown in the plan, and now in use, the number of tracks has been increased from six to eleven, and their length increased by the acquisition of the property to the south of the old tracks in the station, and the property to the north of the tracks west of Aqueduct Street. The northerly of the station tracks has been straightened out to give a clear length of 1,400 feet at the point where it strikes the main line. With one lead track leading into all the station tracks, the tracks vary from the maximum mentioned down to about 400 feet, giving a total station capacity, making due allowance for locomotive length, of 120 cars, varying in train length from five to fourteen cars.



Plan of Canadian Pacific Railway Windsor Street Station and Terminal Trackage and Approaches, Montreal.

Increasing the Grain Storage Capacity of the Chicago Great Western.

AT Kansas City, the Chicago Great Western has recently built a re-inforced concrete addition to its Kansas City grain elevator. The original structure built in 1905, consists of fourteen steel and tile cylinder storage tanks. The additional construction consists of twelve cylinder tanks each 27 feet 8 inches in diameter and 86 feet high. The addition pro-



CHICAGO, GREAT WESTERN'S GRAIN ELEVATOR AT KANSAS CITY, MO., ENLARGED BY THE CONSTRUCTION OF ADDITIONAL STORAGE TANKS OF RE-ENFORCED CONCRETE.

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vides storage for 513,300 bushels which, with the original elevator, gives a total storage capacity of nearly a million bushels or about 1,000 carloads. The accompanying photograph shows the elevator enlarged by the construction of the additional concrete tanks.

Interstate Commerce Commission

New Position for Commissioner Prouty.

AN important recent development has been the public announcement that Charles A. Prouty, the New England member of the Commission, will resign from that body to become director of the Bureau of Physical Valuation of the Commission. While the new position from a salary point of view, is a more lucrative one, it is understood that this has no influence upon Mr. Prouty, who, before the recent developments in connection with the Bureau of Physical Valuation, had already expressed his intention of resigning from the Commission at the end of his seven year term in December, 1914. Later in the month, there developed some doubt as to whether President Wilson would deem it advisable for Mr. Prouty to leave the Commission as his rare ability and long experience make his services of unusual value to that body. At the present writing, it is understood that while Judge Prouty has sent his resignation to Mr. Wilson, it has not as yet been accepted.

Should it be accepted, there is also likely to be another vacancy in the Commission on December 1st, as on that date, Judson C. Clements' term expires and it is generally believed that another will be appointed in his place. This would leave two vacancies for President Wilson to fill and there has been considerable speculation as to his probable selection. Among those who have been prominently mentioned for these positions are Martin S. Decker and Milo R. Maltbie, of the New York Public Service Commission; D. O. Ives, chairman of the Transportation Committee, of the Boston Chamber of Commerce; Patrick J. Farrell, solicitor of the Commission and ex-Governor Glenn, of North Carolina.

It is hoped and believed in making these appointments, if indeed the President decides not to reappoint Commissioner Clements, that they will be of such a character as will tend to further divorce railway regulation from the influence of politics. Perhaps the most essential qualification for a position of this character, is a judicial mind, although administrative faculties are also highly desirable. The time is rapidly approaching when railway problems must be approached from the standpoint of absolute impartiality, if the public is to be really served to the best advantage and only a highly judicial mind contains the fundamental qualities necessary for such an attitude.

While considerable activity is noted in political quarters, for the purpose of having one or more of their numbers appointed to the Commission, it is believed that President Wilson will consider eligible only those men who have had a thorough and practical experience in railway operation or regulation. The situation to-day demands the appointment of such men and no greater harm could befall the proper development of railway regulation than the appointment to these high positions of men whose only qualifications are their political pull or prominence.

Commissioner Clark's Significant Statement.

CONSIDERABLE space is given in another section of this issue to the Convention of the National Association of Railway Commissioners held at Washington, the latter part of October. Perhaps the development which created the most interest in the public mind was the opening address delivered by Chairman E. E. Clark, of the Interstate Commerce Commission, whose remarks were widely interpreted by the daily press as meaning that proper transportation conditions could not be obtained without an increase in rates. While Mr. Clark did not really make this statement and in fact, could not properly have made it, there is surely much of encouragement in what he did say, which was in part as follows:

"An ideal transportation situation can be attained only by large additions to the facilities and great improvement in methods. The added facilities can be secured only through expenditures from surplus earnings or from expansion of credit. In either way the total cost to purchasers of transportation would be increased.

"Even if it be true that the present financial condition of transportation agencies is due to reckless, improvident or even dishonest financing in the past, it would be a mistake to undertake to correct it by a policy of reprisal, which would impair the usefulness or efficiency of the carriers upon which the welfare—the very life—of the commerce, of the country depends. It seems to me that the traveling public is justly entitled to a greater degree of safety while patronizing our railroads. The importance of this should be brought forcefully to the mind of every railroad official and every railroad employe. They should be held to strict accountability for neglect. It would be well to revive and enforce the old fundamental rule for train operation, 'In case of doubt, take the safe side.'"

Commissioner Meyer on Cost Accounting.

AT the recent annual convention of the National Association of Railway Commissioners, Commissioner Meyer, of the Interstate Commerce Commission, delivered a report which reflected to a limited extent his work with the Federal Commission in attempting to arrive at a system of expense sheets for the railroads whereby the cost of each individual service could be estimated as a base for fixing reasonable rates.

He said in part:

"In justice to the opponents of cost accounting, it should be understood that most of the roads which separate their expenses between freight and passenger traffic do so as a measure of efficiency in operating and not for measuring the reasonableness of the rates.

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"There is great need for standardizing the practice to which reference has been made. The most common rule for separating common expenses is that of train miles, but other bases are also used, such as locomotive mileage, car mileage, etc. There is also need for standardizing the practice with respect of those items which are regarded as directly assignable, for it is apparent from these reports that some roads make these assignments with much greater thoroughness than other roads.

"Generally speaking, it may be said that when the accounting has been suitably planned at least two-thirds, and perhaps more, of the operating expenses can be separated either directly or on reasonably convincing basis of apportionment. The percentage obviously depends in part on the nature of the traffic. An all-freight road can apportion 100 per cent of its expenses to freight. The Erie entered 73.3 per cent of its operating expenses in columns calling for expenses caused by either service alone. For the Pennsylvania lines west the corresponding figure was 72.2 per cent.

"Theoretical opinion is showing some tendency to be more favorable to the cost of service principle, and the argument for a system of cost accounting is strengthened by a consideration of the nature of the questions with which regulating bodies have to deal. To be called upon to say, not only what railroads as a whole should be allowed to earn, but more particularly what the freight business shall earn as against the passenger business, or the express business, or the mail business, is to be confronted by questions which admit of no final answer except the answer of cost.

"Railroad representatives have appeared time and again before committees of Congress, before courts and before commissions with cost estimates trying to convince these bodies that this or that rate was too low or not too high. It may be argued that these cost estimates are made at the request of lawyers, and what lawyers do is what lawyers think the courts require.

"Up to the present time the courts have not shown any inclination to discontinue considering cost as an important factor in the ultimate determination of a rate.

"We believe that if cost of service is to continue to be the determining factor in measuring the reasonableness of rates it is time that the division of expenses among the several branches of the service should be threshed out to a finality. In some manner the combined wisdom of engineers, accountants, statisticians, economists, operating officials and representatives of commissions should be concentrated upon this problem with the hope of establishing authoritative rules for the division of expenses."

Organization Notes

Effective Work of the Bureau of Railway Economics.

AT a meeting of the Bureau of Railway Economics, held in Washington, on October 17th, the work of the organization since its inauguration was reviewed, and according to a statement issued by L. G. McPherson, director of the bureau, "speeches commending the impartiality and thoroughness of its analysis of transportation questions and emphasizing the necessity for the continuance of such work, were made by Samuel Rea, president of the Pennsylvania Railroad; W. C. Brown, president of the New York Central; W. W. Finley, president of the Southern Railway; L. E. Johnson, president of the Norfolk and Western; E. P. Ripley, president of the Atchison, Topeka and Santa Fe; Ralph Peters, president of the Long Island Railroad; Frank Trumbull, chairman of the Chesapeake and Ohio and Missouri, Kansas and Texas railways; Frederick A. Delano, president of the Wabash Railroad; C. S. Sims, vice-president of the Delaware and Hudson Company and others. A general executive committee for the ensuing year was elected, consisting of Samuel Rea, chairman; L. E. Johnson, Daniel Willard, Darius Miller, Fairfax Harrison and B. L. Winchell.

Outing of the Pittsburgh Railway Club.

ON September 26th, the members of the Railway Club of Pittsburgh, their ladies and their friends, were the guests of the Westinghouse Air Brake Company at Wilmerding, for a day of outing and entertainment. The program included a trip through the various buildings and shops of this great company and terminated with a dinner served in the Welfare Building to the accompaniment of good music by the Westinghouse orchestra. In the evening the guests were addressed by Mr. A. L. Humphrey, vice-president and general manager of the Westinghouse Air Brake Company, who described in an interesting manner, how the company had built and provided for the inhabitance of the community, a total of 321 substantial homes. In addition to the homes the company has also provided buildings which have been dedicated to the physical, intellectual and social welfare of the district. The streets of the town are paved and provided with perfect sewage, water and light system. It has two parks and an athletic concourse and play ground all provided by the company. Annual prizes are offered for the best kept lawns, gardens, etc. There is a federation employes' association and a relief department which pays relief benefits in case of sickness or injury, and pensions all employes who reach the age of 70 years and have been in the service of the company for 20 years or over.

Mr. Humphrey pointed out that the activities of the company were confined exclusively to the manufacture of railway specialties and asserted that in the company's plant alone had been manufactured 2,800,000 sets of brakes for freight cars, 78,400 sets of locomotive equipment and 86,300 sets of passenger equipment. Referring to the railway situation, he said:

"Notwithstanding the many discouragements, receiverships and failures encountered by the different railways constructed across the con-

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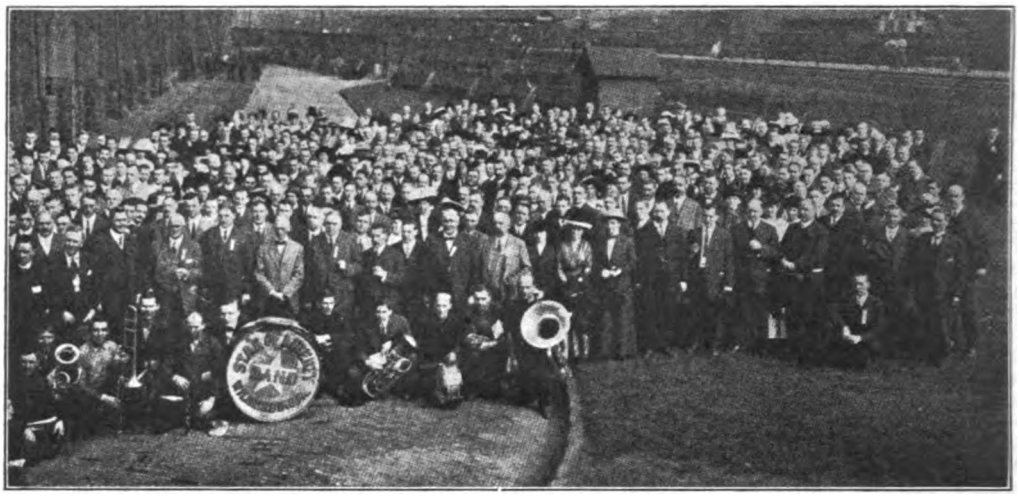

MEMBERS OF THE RAILWAY CLUB OF PITTSBURGH AS GUESTS OF THE WESTINGHOUSE AIR BRAKE COMPANY.

tinent, we find people who still claim that, although our freight and passenger rates are scarcely one-half of what they are in foreign countries, the railroads are robbing the people and giving nothing in return.

"A great deal has been said and written the past few years regarding the conservation of our natural resources and the necessity of a 'Safety First' Campaign. As stated in the first part of my remarks, little is said by journalists or orators about what has been accomplished, but a great deal of fuss is being made about what should be done in the railroad and manufacturing world along the line of safety.

"I have related the advance step taken by the railroads in the introduction of the air brake, which was followed by the introduction of many other appliances equally as important, and about the only credit the railroads received after this work had been largely accomplished was the passing of laws making the use of such safety appliances compulsory.

"I know from my own observation and my long association with railroads that the foremost thought in the minds of the officers at the head of the great systems contributing so much towards the development of this country has been not only the conservation of our natural resources, but the conservation of the human race by the elimination of accidents. The development and introduction of appliances for the safety of the traveling public and the railway employes has kept far in advance of any conceived idea of the necessity for such devices by those that clamor the loudest for them after they discover they have been put in use.

"I am familiar with one case where a Company in one plant spent upwards of three-quarters of a million dollars to improve and add to the sanitary and safety conditions of their manufacturing plant, and, believing that what had been accomplished would be of interest to the general public, a certain important periodical was requested to send one of its writers for the purpose of describing the new features that had contributed so much to the comfort and safety of their employes. After spending several days in and around the plant this writer retired with such information as would have enabled him to write a most interesting article, but instead of giving what would have been of interest and value to the public and other concerns interested in similar work, when the article actually appeared there was scarcely mention made of the many features that had been introduced. The improvements had been passed over with hardly complimentary mention, but the conditions under which some of the foreigners in the neighborhood lived were extensively commented upon and the company severely criticised for allowing such a condition to exist in a community where their plant was located.

"We can only account for such action as this on the part of the social writers on the ground that they give the public what is the most popular, and so long as the public is uninformed we can expect nothing more than sensationalism on the part of those who make a living by these methods.

"It is, therefore, the duty of such organizations as The Railway Club of Pittsburgh, which stands second to none of similar organizations in the country, to give greater consideration to just such subjects, and be prepared to point with pride to what has been done by corporations that its members represent, as this Club is composed of representatives of railways and manufacturing corporations."

Convention of Railway Signal Association.

THE 18th annual convention of the Railway Signal Association was held in Nashville, Tenn., on October 14th to 16th. President B. H. Mann, signal engineer of the Missouri Pacific Railway presided. The membership was reported by the secretary as numbering 1,209. The following subjects were discussed:

"Treated ties and track circuits; switch indicators; mechanical interlocking; power interlocking; automatic blocks; manual block; subjects and definitions; standard designs; electric railways and alternating current signaling; wires

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and cables; storage battery and charging equipment; recording signal performance; low-voltage switch-operating mechanism; state of signaling in the northwest."

Organization of Railway Fire Protection Association.

THE Railway Fire Protection Association was organized in Chicago, on October 7th, with a membership of forty representing the fire protection and other insurance departments of as many railways. A constitution and by-laws were adopted, which provide that "The object of this Association shall be to promote the interest in and improve the methods of fire protection and prevention; to obtain and circulate information on these subjects, and secure the co-operation of its members in establishing proper safe-guards against loss of property and life by fire, and to standardize practices through the interchange of ideas and experiences with regard to such matters in connection with railway properties."

The action of the association is to be considered advisory and not mandatory. Any representatives of railway companies interested in fire protection and prevention are eligible to membership. The annual meeting is to be held on the first Tuesday in October, the location to be selected by the executive committee, and special meetings may be called by the president or executive committee.

Officers were elected as follows: President, F. H. Elmore, superintendent of insurance, Southern, Washington, D. C.; vice-president, P. Hevener, assistant supervisor of insurance fund, Rock Island Lines, Chicago; secretary-treasurer, C. B. Edwards, fire insurance agent, Mobile & Ohio, Mobile, Ala. Executive committee, R. H. Newbern, superintendent insurance department, Pennsylvania, Philadelphia; Col. B. W. Dunn, chief inspector Bureau for the Safe Transportation of Explosives, Inflammables, and Other Dangerous Articles, New York; B. S. Mace, superintendent of insurance, Baltimore & Ohio, Baltimore; G. G. Tunell, insurance commissioner, Atchison, Topeka & Santa Fe, Chicago; N. Searles, insurance superintendent, Southern Pacific, San Francisco, Cal.; W. S. Langford, insurance department, New York Central Lines, New York.

Convention of the Engineering Association.

THE annual convention of the Engineering Association held in Atlantic City, during October, resulted in an attendance practically equal to that at the large convention of 1911. Those in attendance included several managers and engineers from abroad and they were impressed with the scale and scope of the entire convention especially of the exhibits. The election of officers resulted as follows: President, J. H. Hanna, Washington; first vice-president, L. P. Crecelius, Cleveland; second vice-president, John Lindall, Boston; third vice-president, B. F. Wood, Altoona. Members of the Executive Committee: F. R. Phillips, Pittsburgh; Norman Litchfield, New York; H. F. Merker, East St. Louis; J. P. Barnes, Syracuse. Secretary-treasurer, E. B. Burritt.

Meeting of Transportation Club of Indianapolis.

AT the September meeting of the Transportation Club, of Indianapolis, Blewett Lee, general solicitor of the Illinois Central Railroad, delivered an address on the railway situation and its causes. Mr. Lee gave the following reasons why railways at the present time are finding it impossible to borrow sufficient funds to properly finance their obligations:

First, the increase in the price of all railway supplies; second, the steady and heavy increases in the wages of railway labor; third, the heavy cost of legislation and regulation both State and Federal; fourth, the steady progress of rate reductions; fifth, the over-taxation of railroads, and sixth, the growth of personal injury litigation and the extravagant verdicts which have been rendered against the carriers. After elaborating these various causes, Mr. Lee continued:

"Still another consideration in the rise of the rate of interest is corporate finance. Instead of borrowing at four per cent even the most fortunate corporations now, and probably for a long time in future, will have to pay at least five per cent for long time money upon the best security with rates correspondingly higher on short loans.

"What is going to be the outcome of all this? The ultimate result, I fear, is government ownership, with worse administration of the railroads than ever before, and practically no remedy or redress for its shortcomings. We will then be about as helpless about our freight as we now are about our mail. Meanwhile we can only pray:

Be near us when our goods
Are slipping o'er the brink;
We are nearer government ownership to-day
Perhaps than now we think.

"What is to be done about it? Why, there is only one thing that offers any present hope of relief, and that is a moderate but general increase of freight rates. Just as long as the relative adjustment of rates is not changed, nobody would be seriously hurt, and the railroads would be able to show the bankers such a balance sheet as would justify the necessary loans. That is the remedy that England is applying to-day, and that is wise business sense in America, too, and wise statesmanship, also, for it would be ultimately for the benefit of the whole public.

"Now, I confess that I am not very hopeful that the necessary thing will be done, for it requires an amount of moral courage on the part of public men which is painfully absent in public life. To do the presently unpopular thing for the sake of the distant and certain public good takes a certain heroic quality which is very rare. No man wants to be a martyr. What is more likely to happen is that the railroads will continue to sit tight and hold on to every dollar they can, until the pressure of the inevitable increase of business becomes so great that even at present rates they will be able to make a living. Slowly from the grinding necessities of a reluctant people at last by bitter experience will be extorted a sufficient reward to capital to induce further investments in railroad property.

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The mills of God grind slowly,
But they grind exceeding small;
Tho' with patience He stands waiting,
With exactness He pays all.

"The short-sighted greed which compels carriers to work for less than a living wage, will be succeeded by the want, the pressing want, of railroad facilities with no means to get them, for nobody on earth can be compelled to send good money after bad. In the present state of affairs in this country investments in railroads are bad money, and until they are made good money by better rates and fairer legislation, the savings will not be coaxed out of eastern and European strong boxes. The ancient call of "Ducky, ducky, come up and be plucked," has somehow lost its charm, and those bond-buying savings banks have developed a wholesome fear about not getting their interest on new railroad investments. The necessity for improvements is upon us, the money is really there, but the confidence is lacking, and in all frankness it ought to be lacking until a change comes over the treatment which the state gives to its railways."

Meeting of Central Railway Club.—The November meting of the Central Railway Club was held in Buffalo on the evening of the 14th, and proved extremely interesting to those present. Mr. H. B. B. Yergason, delivered an interesting address covering the entire circle of iron ore mining, handling and shipping, including the manufacture of pig iron and some of the more interesting steel processes, all of which were illustrated with a series of moving pictures showing all the operations.

Convention of Railway Electrical Engineers' Association.—The sixth annual convention of the Association of Railway Electrical Engineers was held in Chicago from October 21st to 24th, D. J. Cartwright, electrical engineer of the Lehigh Valley, presiding. Papers were submitted under the following heads: "Head end equipment; head end axle system; locomotive headlights and dynamo suspensions."

The report of the secretary and treasurer showed a membership of 500 and a balance in the treasury of $1,146.

Richmond Railroad Club Safety First Meeting.—It is hard to find a place where the safety first movement is not reaching. Within recent months, talks have been given on this subject before a number of railway clubs and have constituted an unusual effective method by which to spread the movement. At the September meeting of the Richmond Railroad Club, Mr. J. W. Coon, assistant to the general manager of the Baltimore and Ohio Railroad, spoke on safety first and his remarks, which were of an eminently practical character, were followed with the closest attention by those present. Mr. Coon laid great stress on the point that the success of the safety movement rested upon the education of the employe and this must be accomplished in such a manner as to procure both his sympathy and co-operation. Often those employed on the train, in the yard or on the track are suspicious of a movement of this kind because they feel it contains ulterior motives which might prove detrimental to their welfare. The only way to overcome this attitude, as Mr. Coon stated, is to take the men fully into your confidence and to inform them from time to time as to the real conservation of human life which is accomplished through an adherence to the company's rules and the development of more careful methods generally in railway operations. Particular stress is laid upon the rigid enforcement of the company's rules. Without such enforcement greater safety will never become an actuality on American railways. It is often the claim of railway employes that the unvaried enforcement of all rules cause delays which make prompt train movements impossible. Mr. Coon points out that if this difficulty exists the rules should receive the necessary modification, but in no instance should they be subject to the interpretation of the individual but should be closely followed and obeyed by all employes. However, there appears only one method by which this can be accomplished and that is by the further enlightenment of the employe regarding the efficacy and necessity for such rules. In other words, education as heretofore noted, is the keynote of the greater safety movement.

Meeting of Railway Development Association.—The Railway Development Association composed of industrial, agricultural and immigration agents and others concerned with railway development work in the United States, Canada and Mexico, met at Baltimore on November 11th, 12th and 13th, more than a hundred members being present. The subjects discussed included the probable effects of the Panama Canal on the industrial situation in this country; the problem of immigration and how to get the immigrants out of the overcrowded city tenements onto the farm land, where they are greatly needed; the problem of agricultural development and transportation of agricultural products to the cities, and other problems concerning the railway business itself.

The first two days were devoted entirely to business meetings, but on the third day the visiting officials were taken on a trip of inspection over Baltimore which was followed by a trip to Washington and Mount Vernon. On the evening of the second day, a banquet was given in honor of the visiting members and the ladies of the party at the Hotel Bellvidere. Several government and railroad officials addressed the diners.

Annual Meeting of the Newark Traffic Club.—The regular monthly meeting of the Traffic Club of Newark, N. J., was held on Monday evening, November 3rd. As this was the annual meeting, a large attendance was realized and the selection of the Nominating Committee received hearty and unanimous approval of all present.

The new officers are: President, H. B. R. Potter, commercial agent of the Erie R. R.; first vice-president, Charles Vail, G. F. A., Trans-Continental Freight Company; second vice-president, Robert E. McHugh, A. T. M., Murphy Varnish Company; secretary, John J. Kautzmann, traffic manager, Goldsmith Detinning Company; assistant secretary, L. J. Wesley, T. F. A., Lehigh Valley R. R.; treasurer, W. John Creighton, C. R. C., Pennsylvania Railroad.

A. Preston Jump, Freight Agent, Carnegie Steel Company, a former president of the Club, was re-elected chairman of the Board of Governors, and associated with him will be Charles

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Milbauer, T. F. A., Trans-Continental Freight Co.; John T. Rogers, T. M., Thomas A. Edison, Inc.; F. W. Smith, D. F. A., D. L. & W. R. R.; C. H. Gulick, Commercial Agent, Lehigh Valley R. R.; R. O. Von Steuben, Commercial Agent, New York Central Lines and J. W. Paterson, T. M., Balbach Smelting & Refining Company.

Mr. Potter made the following appointments for various committees: Speakers and Papers, C. C. Bacon, chairman; Reception, Abram Davis, chairman; Entertainment, David H. Litter, chairman; Membership, F. E. Stone, chairman; Publicity, E. H. W. Maxwell, chairman; Freight, F. A. Feidler, chairman; Auditing, A. Wilson, chairman, historian, Geo. J. Needham.

Western Classification Committee to Meet in January, 1914.—The next meeting of the Western Classification Committee will be held at Hotel del Monte, Monterey, Cal., commencing Tuesday, January 13, 1914. Chairman Fyfe, of the committee, announces that the docket will close on Monday, November 10, 1913, and notice is, therefore, given sufficiently in advance to enable all petitioners to have their petitions filed before that time, so that the same can be properly included and published therein.

Senator Sherman Addresses Chicago Transportation Association.—That there is no justification at the present time for hostility on the part of the public toward the railroads was the statement made by United States Senator Lawrence Y. Sherman, in an address at a luncheon given by the Chicago Transportation Association, in October. "The public will support any railroad which refuses to be dragged into politics and attends to its own business," said Senator Sherman. "I believe that the rail carriers are attending to their own business to-day and letting politics alone. Shippers should give careful consideration to the question of vesting in the National Government the power to regulate interstate rates. That problem may be presented to Congress, and at the present time, I must admit that I would not know which way to vote."

New York Traffic Club Selects Candidates.—The monthly meeting of the New York Traffic Club, on October 28th, accepted the following nominations of officers for the ensuing year who will be voted for one month hence:

President, R. H. Wallace, general passenger agent of the Erie; vice-president, W. J. L. Banham, traffic manager, Otis Elevator Co.; W. W. Hall, general agent of the St. Paul; John T. Rogers, traffic manager, the Edison Co.; W. H. Snell, general agent, passenger department, Canadian Pacific; A. J. Zock, agent, Hamburg-American Line; treasurer, F. C. Earle, New York; secretary, C. A. Swope, eastern freight agent, Louisville & Nashville; member of board for three years, J. L. Carling, traffic manager, Arbuckle Bros.; W. J. Love, assistant to the manager, International Mercantile Marine; DeWitt, Jr., eastern traffic manager, Western Electric Co.

Meeting of Central Passenger Association.—Central Passenger Association charges clergymen's reduced rates privilege is being abused for account of theological students who would not complete studies for several years applying for clergy fares. Committee has been appointed to report on advisability of abolishing all special clergy fares or establishing a uniform practice for road's guidance.

Action on the question of operating tourist cars from Chicago to nearest points deferred until next meeting. It was decided to inform applicants for low fares to conventions that no fare less than two cents a mile in each direction will be granted.

Fall Meeting of American Railway Association.—The fall meeting of the American Railway Association will be held at the Blackstone Hotel, November 19th. Reports will be presented by the Executive Committee and committees on transportation, maintenance, automatic train stops, relations between railroads and explosives.

President Wilson to Address National Rivers and Harbors Congress.—President Wilson will deliver the opening address at the National Rivers and Harbors Congress, to be held in Washington, December 4th, 5th and 6th. The recommendation of General Bixby, the retiring chief of the army engineers, in favor of the purchase by the Government, of the Chesapeake and Delaware Canal, will be the subject of addresses by Representative John H. Smell, of North Carolina, and Representative J. Hampton Moore, of Pennsylvania. Secretary of War Garrison, John D. Hazen, Minister of Marine and Fisheries of Canada; Senator Fletcher, of Florida; John Barrett, of the Pan-American Union, and a score of others will address the Congress.

Bi-Monthly Meeting of Pittsburgh Traffic Club.—The Traffic Club, of Pittsburgh, held its bi-monthly meeting and dinner at the Fort Pitt Hotel, Monday, October 13th. The affair was for members only and a full attendance was had, with Mr. E. C. Sattley, president, presiding. After the business meeting an address was made by Mr. W. J. Bogert, historian, followed by moving pictures of "The Pendleton Round-Up," portraying old customs of the far west. An excellent musical program was rendered. The Club at this meeting, decided to increase the radius from forty to sixty-five miles of Pittsburgh for the Transportation Members, which will place the railroad radius on a parity with the industrial. This will make eligible for membership railroad officials from Youngstown, Steubenville, Wheeling and Johnstown districts.

LEGISLATION.

Legislation Affecting Train and Switching Crews

THE Special Committee on Relations of Railway Operations to Legislation, have recently issued Bulletin No. 55, which contains a review of the legislation which has been enacted in twenty-one states affecting train or switching crews. An anaylsis of these laws is also presented. The Bulletin calls attention to a law which has been enacted in Arizona, limiting the number of passenger and freight trains and that in some sixteen States, laws have been passed which prescribe certain qualifications for

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employes. The Bulletin has been prepared with the view of showing the gradual development of legislation on this subject and includes all the laws which have been enacted at any time regardless of whether later legislation has repealed previous laws. The analysis of such laws, however, which is also presented, contains only the provisions of acts which have not been repealed. The Bulletin should prove exceedingly valuable to all those engaged in the legal and operating departments of the railways.

Congress and the Railways.

NOTWITHSTANDING the fact that Congress has appeared busily engaged during recent months in the consideration of tariff and currency matters, a large number of bills affecting the interests of common carriers, from track equipment to rolling stock, and also extending the control of the Interstate Commerce Commission, have been introduced during the present session, and their number and variety unmistakably indicate that Congress intends to continue its activities along the lines of railway regulation.

In a recent issue, "The Nation's Business," the official organ of the Chamber of Commerce of the United States, presents a summary of these bills, the most important of which are the measures that propose to increase the powers of the Commission. There are from ten to fifteen of such bills.

As placing additional responsibilities upon railroads, possibly the fourteen bills prohibiting the transportation of certain kinds of freight would, if made law, prove the most exacting.

Seven measures affect track equipment and nine the equipment of rolling stock.

Passengers' interests are directly involved in three measures. The relations of railroads and express companies are involved in three measures.

Three measures relate to governmental supervision of capitalization.

Five relate to the transportation of live stock and the icing of cream.

Six deal with the extension of the liabilities of common carriers and certain phases of legal procedure. Three deal with rate discriminations.

Four relate to bills of lading and four to the interests of the employes of common carriers.

The most far reaching bills relative to extending the power of the Interstate Commerce Commission are S. 2515, introduced by Mr. Lewis, of Illinois, and H. R. 7213, introduced by Mr. Cullop, of Indiana. The title of the first of these is "To amend the interstate commerce law and to authorize the Interstate Commerce Commission to assume the power of supervising the issuance of stock, the issuance of bonds, the matter of consolidation, amalgamation, or combination of all transportation lines doing an interstate commerce business, and all interstate concerns engaged in any form of interstate commerce, and for such other purposes as shall protect the public against watered stock and excessive bond issues and consolidations made with the object of effecting monopoly and trust in matters of interstate commerce." The title of the second is "To regulate the purchase and leasing of railroads and the issuance of stocks and bonds by common carriers, and for other purposes."

Both of these measures would empower the Commission to approve or disapprove of the issuance of stocks and bonds by common carriers.

Both of the bills also prevent the mergers of railroads until the mergers are proved to the satisfaction of the Commission not to be detrimental to the public welfare.

Other bills introduced during the present session of interest to the railways may be briefly summarized as follows:

A bill by Mr. Peters, of Massachusetts, permitting the Interstate Commerce Commission to establish branch offices in charge of agents who may grant preliminary hearings and adjust differences on freight car demurrage, the agents' decision to be approved by the Commission.

A bill by Mr. Lafferty, of Oregon, to enlarge the jurisdiction of the Interstate Commerce Commission by giving to that body power to fix reasonable rates based upon physical valuation, to be charged by all common carriers, etc.

Two bills, one by Mr. Kenyon, of Iowa, and the second by Mr. Sims, of Tennessee, authorizing the Interstate Commerce Commission to determine a uniform freight classification.

A bill by Mr. Hardwick, of Georgia, requiring the Interstate Commerce Commission to show in its annual report all accidents and their causes and providing for a penalty to be met by railroads who delay the filing of their reports.

A bill by Mr. Hulings, of Pennsylvania, which would appropriate $50.000 to enable the Interstate Commerce Commission to investigate appliances or systems that promote the safety of railway operations.

A bill by Mr. Miller, of Minnesota, requiring that transportation, telegraph and telephone companies engaged in interstate commerce and contemplating the issuance of securities should make full reports on the purpose of same to the Interstate Commerce Commission. This bill would prohibit the issuance of securities for funded indebtedness for a longer term than fifty years or at a rate of interest higher than six per cent.

A bill by Mr. Allen, of Iowa, conferring upon the Interstate Commerce Commission the adjudication of wage differences between employes and employers of common carriers.

Three bills bearing directly upon the supervision of directorates have been introduced. One by Mr. Chilton, of West Virginia, forbids any merger that would result in monopoly and would further forbid the officers of one company from acting as officers or executives of another or controlling it through the holding of stocks or otherwise. Two bills on the same subject introduced by Mr. Stanley, of Kentucky, are aimed at preventing the directorates having as members those who are engaged in manufacturing commodities that the railroads would need.

Two features of prohibited freight are mentioned a number of times in the pending legislation of the present Congress. The first relates to the products of convict labor and the general purpose of all is to divest goods, wares and merchandise, manufactured by convicts or

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by convict labor, of their interstate character, and not simply to limit but to forbid their shipment in interstate commerce.

Three bills dealing with the regulation of the products of child labor, have been introduced; one by Mr. Kenyon, of Iowa, which would prohibit interstate carriers from accepting the products or outputs of factory, mines or mills employing children under fourteen years of age. Another bill has been introduced by Mr. Cullop, of Indiana, for a similar purpose. This bill would also compel all corporations running factories, mines or mills, to file semi-annually with all carriers who handle their products, an affidavit that no children under fourteen years of age were employed.

Six measures are before Congress relative to the adoption of steel mail cars and passenger equipment. Each of these bills differ slightly in title and in detail. Three of them make it unlawful, after January 1, 1914, to run wooden passenger or mail cars between cars of steel. The bill of Mr. Roberts not only includes all steel passenger equipment but involves the adoption of safety devices, automatic switches, signals, etc., within two years. Failure to adopt such devices would in case of any accident, resulting in the death of any person, make the directors and officials of the railway company, individually liable on charge of manslaughter.

A bill of Mr. Mann would prohibit the use of any but steel railway mail cars after July 1, 1917. According to the bill introduced by Mr. Esch, of Wisconsin, the adoption of steel car equipment must be complete on January 1, 1918, and according to the bills of Mr. Talcot, of New York, and Mr. O'Gorman, of New York, upon the same date. A bill by Mr. Hughes, of West Virginia, places the date on January 1, 1915, and one by Mr. Roberts, of Massachusetts, within four years.

Mr. Mann, of Illinois, has introduced a bill to compel the railroads to adopt a block system of signaling over the entire mileage, allowing twelve years for installation and providing for semi-annual reports of progress. A bill by Mr. Esch, of Wisconsin, provides for the completion of the block system by July 1, 1917. The bill also provides that on roads where receipts from passenger traffic, express and mail have aggregated $1,500 per mile or where receipts from all traffic have aggregated $3,000 per mile for two years, the adoption of the block system should be obligatory by July 1, 1914.

A bill by Mr. Levy, of New York, would require the railroads to report to the Interstate Commerce Commission within ninety days, the system of signaling and train control in use and would require the installation of automatic train stops within twelve years, at least one-twelfth of the mileage to be completed each year.

A bill by Mr. French, of Idaho, goes so far as to compel common carriers to adopt uniform rules for the operation of railroad trains and to use a uniform system of signals.

Three headlight bills have been introduced; those by Mr. Cummins and Mr. Talcot being identical and requiring suitable headlights as determined by the Interstate Commerce Commission. A bill introduced by Mr. Raker, of California, would require common carriers to equip all locomotive engines used in interstate traffic with headlights of not less than 1,500 candle power.

A bill introduced by Mr. Sutherland would provide an exclusive remedy from accidents resulting in disability or death to employes of railroads engaged in interstate or foreign commerce.

A number of bills were introduced for the purpose of extending the scope of workmen's compensation when applied to civil employes of the United States Government. The bill introduced by Mr. Sabath, of Illinois, includes both employes of common carriers and civil employes. A number of bills of similar character have been introduced and while those that relate to the compensation for injuries received while in the employ of common carriers, differ in some details, all are aimed at an extension of the workmen's compensation idea and would generally make the burden of the compensation for injuries an element in the cost of transportation.

Several bills have been introduced relative to the hours of work for employes of common carriers. That of Mr. Kern provides for one day off in seven. That of Mr. Carey, of Wisconsin, limits employes of carriers to sixteen hours' continuous work with the exception of train dispatchers, tower and signal men, whose hours of continued employment are to be eight.

Mr. Sherwood, of Ohio, introduced a "full crew" bill which provides for a full crew on all trains operated.

A bill by Mr. Dyer, of Missouri, provides for the examination, determination and certification by the Interstate Commerce Commission as to the competency of roadmasters, foremen and other employes of common carriers.

Six measure appear under the classification of liability and legal procedure. A bill by Mr. Adamson, of Georgia, defines the time in which action by a common carrier for the recovery of compensation of services can be started. The term is set at three years. A bill by Mr. Kahn, of California, for a similar purpose sets the term at one year.

A bill introduced by Mr. Cummins, of Iowa, provides that railroads shall not exempt themselves from liability by any stipulation in contracts, tickets, bills of lading, etc.

A bill introduced by Mr. Clapp, of Minnesota, allows ninety days for the settlement of claims against domestic shipments and six months for those from points outside of the United States.

A bill introduced by Mr. Shafroth, of Colorado, would make the common carrier issuing a bill of lading, liable to the lawful holder for loss, damage or injury to goods whether caused by it or by connecting carriers en route.

A bill introduced by Mr. Sims, of Tennessee, for the purpose of regulating the issuance of injunctions or suspensions against orders of the Interstate Commerce Commission, would require that the carriers pay into the court during the pendency of the suit, the difference between the rate fixed by the Commission and the new rate sought to be imposed.

Three measures are pending relative to rates. One by Mr. Pepper, of Iowa, which would make the discrimination and overcharges, the elements of damage to be measured by the differences between the rate charged the injured party and the rate charged other shippers under similar circumstances, even though rates have been declared reasonable in other respects.

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A bill by Mr. Madden, of Illinois, would make the fact that a defendant carrier before the Commission voluntarily maintains a given rate under certain conditions, evidence of its reasonableness in its application to the same commodity over other portions of the lines of the defendant under substantially identical conditions.

A bill by Mr. LaFollette would abrogate the regulation covering short and long haul and through rates as provided in section four of the Interstate Commerce Act, with reference to Buffalo, Pittsburgh and points east.

Two bills bearing on bills of lading, have been introduced by Mr. Pomerene, of Ohio. One of these bills makes carriers liable to innocent endorsee or purchaser of bill when issued by the agent without receiving the goods. It also proposes to codify the obligations and rights of transfers and transferees. A variation from this bill is found in one introduced by Mr. Clapp, of Minnesota, which defines order and straight bills of lading and makes carriers liable to innocent endorsee or purchaser of bill on which an agent did not receive goods or which carrier did not make upon delivering goods.

In providing for livestock regulations, Mr. Mann has introduced a bill covering the feeding and watering of poultry in transit in which proper ventilation, types of cages and the removal of injured birds from crates are involved. Mr. Cline, of Indiana, has introduced a bill providing that carriers in transporting livestock must maintain an average speed of fifteen miles an hour. A bill by Mr. Gronna, of North Dakota, provides for the transportation of livestock at not less than twenty miles an hour.

Three measures are pending relating to the absorption of express business by railroads. A bill by Mr. Blackmon, of Alabama, requires all common carriers engaged in interstate and foreign commerce, to collect, accept, receive, transmit and deliver all express packages not exceeding in weight fifty pounds. A bill introduced by Mr. Campbell, of Kansas, would prevent common carriers from leasing or permitting other persons, firms, etc., to carry packages over their lines for hire and would compel the common carriers to furnish the necessary facilities. A bill of similar character has been introduced by Mr. Martin, of South Dakota.

Proposed baggage legislation includes a bill by Mr. Cummins, of Iowa, which fixes the amount of baggage of each passenger carried free at 150 pounds to include samples, catalogs, etc., of commercial travelers when packed in substantial trunks convenient for handling.

A bill has been introduced by Mr. Thomas, of Colorado, which would in effect, make all railroad tickets transferable by delivery.

Mr. Smith, of South Carolina, has introduced a bill to require all common carriers in interstate business to provide separate sleeping accommodations for the conveyance of white and colored passengers. A proviso is included that such accommodations must be equal in all respects as to comfort and convenience.

Acts in Restraint of Trade.—What constitutes a contract in restraint of trade is a matter that seems likely to figure in an important way in the discussion of the trust question during the coming winter session of Congress. The subject is figuring in many of the bills that are being offered, and attempts are being made from time to time to interest the trust programme framers of the Administration in developing a correct definition of what contracts are to be regarded as unduly restraining trade. The urgency for such a definition to be enacted into law has been gaining in strength for some time past, as is seen by the constant reappearance of plans relating to the subject, and may be regarded as certainly likely to be a part of the discussion which will constitute the foundation of the winter's work on trusts.

The Administration's Trust Program.—Joseph E. Davies, commissioner of the Bureau of Corporations, in a recent address before the National Association of Hardware dealers, announced the beginning of a new scientific investigation of the industrial situation under the direction of President Wilson, which will contribute to the administration's trust legislation program at the session of Congress beginning December 1st. The bureau will attempt to determine whether a competitive system of large units or a monopolistic system is the most advantageous to society.

"It is characteristic of the quality of mind of the President of the United States that he should desire facts on which to base his judgment," said Commissioner Davies. "There are now no governmental or other agencies engaged in attempting to get scientific information on this fact. We shall enter into this investigation with the sole intent of working out in a scientific and fair-minded spirit the facts, absolutely as they are. So vital and so fundamental is this problem that to attack it in any other spirit, would be criminal. What is needed is light; not heat. The problem bristles with difficulty. It will demand an increased appropriation from Congress. The results may not coincide with all we hope to procure, but we can, however, obtain facts that will contribute toward correct interpretation of industrial conditions as they exist."

Commissioner Davies declared that "This problem reaches down to the fundamentals of government itself; it will tax the greatest minds of this generation and the next. In its solution there is a call to all upstanding, thinking, patriotic men to aid in preserving conditions which shall safeguard the liberties of men, and that there may be an industrial freedom founded in this country which shall enable our children to be men—not slaves either to an industrial hierarchy or to a governmental despotism."

TRAFFIC.

A Prize Essay on Ticket Selling.—The Baltimore and Ohio Railroad has recently conducted a novel competition between its ticket agents by awarding a prize of $25 for the best essay submitted on the subject of "How a ticket agent should handle an undecided inquiring caller." After the examination of a large number of essays which were submitted from various parts of the system, the prize was finally awarded to Elias Bernstein, ticket agent of the Staten Island Railroad at Pleasant Plains, New York. Writing about the attitude of a ticket agent towards a prospective passenger, Mr. Bernstein said:

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"A ticket agent is a salesman in the broad sense of the word. Salesmanship may be defined as the science and art of influencing the mind through the senses. The style of argument and the kind of reasoning to be used must be determined by the proposition the salesman is handling and the character of the buyer. Whether it be on the road with the line of merchandise or behind the ticket counter, the salesman must have at his command a thorough knowledge of his business and an understanding of human nature.

"Now you stop to think of it, it is a great art to handle a man in such a way as to win both his trade and his friendship. A living man is the most complex piece of machinery in the world. Compared to him, a locomotive is a play toy. The slightest blunder may cause him to work badly or to break down; yet there are no printed directions attached to him. All we can do is to watch his eyes and do our best.

"Now, let us suppose a case where an undecided caller steps up to the ticket window for information. He wants to know what advantage our road has over another which also runs to his destination. The agent has before him a prospective customer. His aim should be to convince that person and get his patronage. To do this certain golden rules must be closely adhered to. The first greeting from the agent must be a sunny smile. He must listen attentively and study the brand of information desired.

"Since first impressions are very lasting the company's servant must have at his fingers' tips facts and figures. It must also be kept in mind that it is easier to win a man through his eyes than his ears. Diagrams and maps are very helpful and speak for themselves. Lastly, you can never win a man by talking at him; you must talk with him.

"Psychology plays a prominent part in dealing with a doubtful individual. Say something pleasing to him and be cordial. If he is a business man he will respect your judgment if you tell him that the town is moving his way, or that you note the marked increase in his business. Then come to the point and answer his questions in a clear, matter-of-fact business-like way. It strengthens the arguments and shows self-confidence in the assertions made. Remark casually as you go along that that particular portion of the road-bed has lately been ballasted and that a new block system now protects it; mention the "Safety First" movement, it is a fine topic for conversation to explain that all the trains running at his objective point have fine observation platforms and that riding outside can keep his linen clean. These arguments which tend to insure safety and comfort outweigh the competitors' claim for speed and even a shorter route.

"Secure that man's business even if it is small. The company will give him satisfaction. A satisfied patron is an advertisement. It will create new travel and bring results."

Uniform Classification Meeting.—The Executive Commitee on Uniform Classification recently held a meeting in Chicago for the further consideration of a plan which is being worked out to bring about a uniformity in the classification of freight shipments. The Committee is making rapid progress in its work and up to the present time, the official Southern and Western Classifications have adopted 55 per cent of the classifications recommended by the Uniform Committee. In arriving at a common basis governing uniform classification, it has been necessary to study the rate question, industrial markets, the markets of production and consumption and many other phases of the transportation of freight, but despite the many difficulties and perplexities encountered, considerable progress is being made. As Vice-President Randolph, of the Baltimore and Ohio Railroad recently pointed out, it has been necessary in arriving at the best results to secure close co-operation between shippers and the railroads and at the same time, procure the approval of the Interstate Commerce Commission.

The railroad officials on the committee on uniform classification are as follows:

Official Classification Territory: George F. Randolph, vice-president, Baltimore and Ohio; B. Campbell, vice-president, New York, New Haven and Hartford; T. N. Jarvis, vice-president, Lehigh Valley; D. T. McCabe, vice-president, Pennsylvania Lines; W. C. Maxwell, general traffic manager, Wabash; D. W. Cooke, traffic manager, Erie; and C. F. Daly, vice-president, New York Central Lines.

Southern Classification Territory: H. F. Smith, vice-president, Nashville, Chattanooga and St. Louis; J. M. Culp, vice-president, Southern; A. R. Smith, vice-president, Louisville and Nashville; W. A. Winburn, president, Central of Georgia; F. B. Bowes, vice-president, Illinois Central; C. R. Capps, vice-president, Seaboard Air Line, and W. H. Pleasants, vice-president, Ocean Steamship Company.

Western Classification territory: H. R. McCullough, vice-president, Chicago and Northwestern; J. E. Gorman, vice-president, Chicago, Rock Island and Pacific; L. J. Spence, vice-president, Southern Pacific; C. G. Burnham, vice-president, Chicago, Burlington and Quincy; J. M. Johnson, vice-president, Missouri Pacific; C. Haile, vice-president, Missouri, Kansas and Texas; E. S. Keeley, vice-president, Chicago, Milwaukee and St. Paul; W. B. Biddle, vice-president, St. Louis and San Francisco, and Edward Chambers, vice-president, Atchison, Topeka and Santa Fe.

Boston Shippers Contest Differential Order.—D. O. Ives, chairman of the Transportation Committee, of the Boston Chamber of Commerce, recently declared that consideration is now being given to determine what are the proper legal steps to prevent the enforcement of the recent order of the Interstate Commerce Commission abolishing the port differentials favoring Boston as against New York. The order of the Commission, Mr. Ives asserts, requires heroic action both on the part of the Boston shippers and the railroad officials and he affirms that if it were literally followed, it would result in calamity to the port not contemplated by the framers of the law.

LEGAL.

Beginning of the Anthracite Coal Trust Suit.—The Philadelphia and Reading Railway, the Philadelphia and Reading Coal and Iron Company, the Wilmington and Northern Railway and the Lehigh and New England Railroad, have filed denials in the United States District Court

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at Philadelphia, that they are parties to an alleged combination in restraint of the anthracite coal trade. These denials are in reply to the suit brought by Attorney-General McReynolds on September 2nd. This is the second step taken on the part of the Government in its efforts to break up what it alleges to be an illegal combination. It desires to bring about the separation of the Central Railroad of New Jersey and its affiliated companies from the Reading system and also seeks to separate the Reading Company from the Coal and Iron Company and from the Railway Company and other smaller concerns.

The answers of the Reading companies admit the reorganization of companies and the several leases which the Government complains of in its action, but the companies aver that none of the leases, reorganizations or traffic arrangements were made for an illegal purpose. The answer of the Reading Company denies that "this company, Philadelphia & Reading Railway Company and the Philadelphia & Reading Coal & Iron Company are one and the same association of persons engaged in mining, selling and transporting coal, or in any one of these lines of business or otherwise, either under the direction of any of the persons mentioned in the Government's petition."

The answer of the Reading Company also denies that it has at any time monopolized the production and transportation of anthracite in and from the Schuylkill region or attempted to gain a monopoly in any other hard coal field.

All the companies making answer deny that they are parties to any agreement to control or monopolize either the production of anthracite or its transportation from the mines in Pennsylvania to market points in other States, or its price or sale in or throughout other States, and they, therefore, ask that the suit against them be dismissed.

Commerce Court's Last Days.—Rapid work is being done by the Commerce Court in order to clear its docket by December first, the day on which it ceases to be a Court. The tribunal has a number of interstate commerce cases that have been under its consideration for some time and every effort is being made to dispose of them before the Court finally adjourns.

Conviction Under the Carlin Law.—The Carlin bill, recently passed by Congress, making the robbery of freight cars, baggage cars and express cars, engaged in interstate commerce and the robbery of shipments from platforms and stations, a federal offense, was applied recently in the Federal Courts at Birmingham, Alabama, when John L. Parker was given a sentence of six years in the United States prison for robbing a shipment of shoes consigned to Glazen, Miss., from a car in the Birmingham yards on May 4th. Parker was also implicated in robbing a shipment of notions consigned to Avondale, Ala., from a car in the Birmingham yards on the night of July 30th and Otis Williams and Arthur Goodeye, who assisted him, were given sentences of four years and six months and three years and six months respectively in the United States prison.

Under the Carlin law, the prosecution of car and depot thieves is greatly simplified and the certainty of conviction is much greater, as the federal statutes do not provide the loopholes found in various States' laws through which many criminals whose guilt was clearly proved have been enabled to escape on technicalities.

STATE COMMISSIONS.

Arkansas.—All railroads in Arkansas are affected by a recent ruling of the State Commission establishing a flat, rough material rate on lumber of two cents per hundredweight on the first twenty-five miles of travel and increasing one-fourth of a cent for each additional ten miles.

A minimum weight limit of 40,000 pounds per car for cars so rated was ordered, and in cars of less than 40,000 pounds capacity the minimum weight will be the marked capacity of the car.

Illinois.—Drastic action will be taken by the railroad and warehouse commission against railroads which neglect to comply with the headlight law passed at the last session of the legislature. Complaint against a number of rail lines which have failed to obey provisions of the act has been made by labor organizations.

The law provides that locomotives used in passenger service, except suburban, shall be equipped with headlights of sufficient candle power to throw a light in clear weather that will enable the engineer to discern an object "the size of a man" upon the track at a distance of 800 feet from the headlight. On engines used in freight service, exclusive of switching, the distance is restricted to 450 feet, and on engines operated in switching and suburban passenger service it is placed at 250 feet.

Members of the Railroad & Warehouse Commission have decided to enforce a general switching rule in all Illinois cities and towns, with the exception of Chicago and East St. Louis. A conference on the subject was held in the offices of the Commission by the commissioners, downstate shippers and traffic officials in October. It was agreed that a committee of ten members, representing both the railways and shippers, should prepare a tentative rule for switching service and submit it to the Commission for approval within thirty days.

A supplement to the Illinois freight classification containing additions, cancellations and changes in the classification of forty-two articles of merchandise, has been issued by the State Railroad and Warehouse Commission.

Massachusetts.—The Public Service Commission has formulated a tentative order as a feeler for what publicity should be given to certain kinds of expenses of railroads, street railways and telephone companies. The order contemplates that the railroads, railways and telephone companies shall file sworn monthly statements of all payments for advertising, all salaries and expenses paid through the legal departments, All payments for legal services to persons not regularly connected with the legal departments, all payments in connection with legislation, all kinds of political campaign contributions and all "other expenses," "general expenses" and "general miscellaneous expenses." These statements are to show the names of persons, firms or corporations to whom the payments are made and the character of the service rendered.

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Minnesota.—The Railroad and Warehouse Commission has announced the proposed schedule of freight rates provided by the Cashman distance tariff law, passed by the last Legislature and which becomes effective January 1st. Merchandise rates under the new system are slightly higher on shipments up to 125 miles than the rates upheld by the Supreme Court of the United States in the Minnesota rate case, lower from 125 to 300 miles, and higher from 300 to 400 miles. Commodity rates are the same as the present maximum, with the exception of lumber, which has been slightly reduced.

The Chicago Great Western Railroad entered a protest with the State Railroad and Warehouse Commission against the proposed test of the new State rates held valid as to certain railroads by the recent United States Supreme Court decision. The Commission is not inclined to grant the request, and the case of the Great Western may again come up in the federal courts. An injunction restraining the State from enforcing its reduced tariffs after July 1, 1911, was obtained by the Great Western and never has been dissolved. After the Supreme Court decision the Great Western asserted its earnings were on a par with those of the Minneapolis and St. Louis, which road the Supreme Court exempted on the ground that the new rates would be confiscatory.

State officials and representatives of the Great Western recently agreed upon a test period of four months, to begin October 1st, during which time accurate accounts should be kept on the road's earnings. The Great Western now claims the expense of such a procedure is too great and asks that the case be tried on its merits.

Nebraska.— Seven railway companies doing business in Nebraska have filed with the Railway Commission of the State a notice of an appeal to the Supreme Court of Nebraska on the recent decision of the Commission to reduce freight rates on apples, peaches and pears in carload lots. The roads announced that the new rates would be effective, however, pending the action of the higher court.

New York.—Legal representatives of the Erie Railroad Company on October 6th, requested the Public Service Commission for permission to issue gold equipment trust obligations to the amount of $5,790,000. The Commission took the application under advisement.

The up-State Public Service Commission entered an order early in October, providing for inquiry and investigation into the rates charged by express companies operating over steam railroads within New York State. The Commission named the following companies as respondents:

American Express Co., National Express Co., United States Express Co., Wells Fargo & Company Express, and Adams Express Co.

These companies were directed to file with the Commission, on or before October 20th, a statement in writing showing what, if any, changes in the rates and regulations they desire to establish and make effective with a view to reductions in their charges.

Texas.—The railroads of Texas are much disturbed over an order which has just been issued by the State Railroad Commission, as follows: "In all cases where shipper or consignee has an industry or warehouse located directly upon team or other public delivery tracks, out of and into which goods can be loaded or unloaded into or out of cars without wagon haul, switching service, at the charges and under the regulations in this tariff (general switching tariff) provided, shall be performed. Except as hereinbefore specified, carriers will not be required to switch to or from such public delivery tracks."

The effect of the above order is to compel the railroads to switch from one line to another in switching limits where the industry or warehouse is located on a delivery track. They have been refusing to do it on the ground that it was a competitive local situation and they should not be forced to do it. They were sustained by a rule of the Commission, which is now abrogated.

The Texas Railroad Commission has authorized the issuance of $800,000 of bonds by the San Antonio, Uvalde & Gulf Railroad, making the total amount outstanding $3,663,000. The bonds are part of an issue of $13,500,000 first mortgage five per cent 30-year gold bonds, dated February 1, 1913.

BOOK REVIEWS.

"Freight Classification," By E. R. Dewsnup.—There is no subject of more importance to the traffic man than freight classification. In his new treatise on the subject, published by the LaSalle Extension University, Chicago, Professor Dewsnup has furnished a simple and practical treatment of freight classifications and one which will be valuable alike to the layman and to the experienced traffic man. The application of classifications and exceptions, the principles of classification and rate-making, and uniform classification are treated in an eminently practical and interesting manner.

A very unique feature of the treatise is the appendix. The information contained therein has never before appeared in any one publication. Appendix A contains descriptions of territories, groups, and points used in the handling of traffic as described in various publications of the carriers. Appendixes B and C contain definitions of traffic terms and abbreviations in common use. Appendix D shows detailed application of classifications both within and without their respective territories. These appendixes furnish valuable reference material in the most convenient form. Mr. Dewsnup is Professor of Railway Administration at the University of Illinois. He is editor of and contributor to "Railway Organization and Working" and author of numerous articles and reviews dealing with railway topics.

Routing Freight Shipments.—There are a great many factors that a traffic man must consider when routing freight. In his treatise on "Routing Freight Shipments," Mr. J. F. Morton, assistant traffic director of the Chicago Association of Commerce, who is an expert in routing freight shipments, and who prepares the "Package Car Service Bulletin" for the journal, "Chicago Commerce," sets these factors out very clearly in a brief space. The author not only shows the principles that the shipper should consider when making a shipment, but also shows why certain ways of routing shipments that are in more or

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less common use fail to attain the desired results. In the conclusion to this treatise, the author shows by concrete examples how failure to weigh all the factors to be considered in routing may work injury to the shipper and inconvenience to the carriers. "Routing Freight Shipments" is published by the LaSalle Extension University, Chicago.

Freight Claims.—One of the reasons that shippers secure poor results in the handling of freight claims is that the claims are not properly filed so that the carrier may have sufficient data to investigate the merits of the claim intelligently. To overcome this difficulty by presenting the correct methods of filing freight claims, W. A. Trimpe, a Chicago lawyer formerly connected with one of the largest firms in the country handling freight claims, sets out in concrete form the proper methods for handling claims, in a treatise published by the LaSalle Extension University, Chicago. The author has shown in this treatise how to file the different kinds of claims in a way to cause the carrier no unnecessary work and at the same time secure prompt and satisfactory adjustment. Every step in the handling of the claim from the industrial man's standpoint is clearly set out, and to assist those who are not familiar with the subject of freight claims, the more important documents appearing in the investigation of a claim for damage are shown.

ELECTIONS AND APPOINTMENTS.

Executive.

William J. Cunningham, vice-president's assistant, New York, New Haven & Hartford Railroad. Headquarters, New Haven, Conn.

Howard Elliott, chairman of the board of directors, New York, New Haven & Hartford Railroad. Headquarters, New Haven, Conn.

George S. Hobbs, second vice-president of the Maine Central R. R. Headquarters, Portland, Me.

Frederick S. Holbrook, vice-president in charge of traffic, Wells Fargo and Co. Express. Headquarters, New York.

James H. Hustis, president, New York, New Haven & Hartford Railroad. Headquarters, New Haven, Conn.

E. T. Lamb, receiver, Atlanta, Birmingham & Atlantic R. R.

Clement W. Nelson, assistant to the president, St. Louis, Southwestern Railway. Headquarters, St. Louis, Mo.

J. W. Newlean, vice-president and comptroller, financial accounting and supply departments, Wells Fargo and Company. Headquarters, Chicago, Ill.

C. H. Porter, chief clerk to the president, Western Maryland Railroad. Headquarters, Baltimore, Md.

Alexander Robertson, president, American Refrigerator Transit Company.

E. H. Ryan, president, Muscatine North and South Railway. Headquarters, Muscatine, Iowa.

Thomas M. Schumacker, chairman of the Board, Chicago, Rock Island and Pacific Railway.

W. L. Seddon, vice-president, Macon, Dublin & Savannah Railroad.

E. C. Smith, president, Central Vermont Railroad. Headquarters, St. Albans, Vt.

W. T. Stringer, assistant to the president, Western Maryland Railroad. Headquarters, Baltimore, Md.

Charles N. Voss, vice-president and treasurer, Muscatine North and South Railway. Headquarters, Muscatine, Iowa.

J. D. Watson, vice-chairman, Southwestern Tariff Committee. Headquarters, St. Louis, Mo.

James G. Woodworth, vice-president in charge of traffic, Northern Pacific Railroad. Headquarters, St. Paul, Minn.

Legal.

J. P. Blair, general counsel, Southern Pacific Company. Headquarters, New York.

Thomas Bond, commerce counsel, St. Louis and San Francisco Railroad. Headquarters, St. Louis, Mo.

T. H. Burgess, assistant general solicitor, Erie Railroad.

Fred H. Wood, general attorney and commerce counsel, Southern Pacific Company. Headquarters, New York.

Financial.

J. C. Brinton, assistant secretary, Erie Railroad. Headquarters, New York.

H. B. Holbert, secretary, Muscatine North and South Railway. Headquarters, Muscatine, Iowa.

J. W. McCullough, secretary and treasurer, Sour Lake and Western Railroad.

Accounting.

G. W. Briece, car accountant, Missouri Pacific Railway. Headquarters, St. Louis, Mo.

E. A. Chavannes, auditor, Pacific and Idaho Northern Railway, and the Central Idaho Telegraph and Telephone Co. Headquarters, New Meadows, Idaho.

M. T. Coogan, auditor, Ashley, Drew and Northern Railway. Headquarters, Crossett, Ark.

E. Deschenes, Jr., auditor, Central Vermont Railway. Headquarters, St. Albans, Vt.

W. C. Everett, auditor, Virginian Railway. Headquarters, Norfolk, Va.

E. I. Grenfell, consulting auditor, Wichita Valley Ry. Headquarters, Fort Worth, Texas.

William Hough, general auditor, Pullman Co. Headquarters, Chicago, Ill.

E. C. Morris, auditor, manufacturing department, Pullman Company.

William Riley, auditor, ticket accounts, Pullman Company.

George S. Seymour, auditor of miscellaneous accounts, Pullman Company.

R. G. Shorter, assistant auditor, Georgia and Florida. Headquarters, Augusta, Ga.

Frederick L. Simmons, assistant general auditor, Pullman Company. Headquarters, Chicago, Illinois.

W. H. Vincent, assistant auditor, Georgia Railroad. Headquarters, Augusta, Ga.

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Engineering and Mechanical.

Edward L. Adams, assistant signal engineer, Lake Shore and Michigan Southern and the Dunkirk, Allegheny Valley and Pittsburgh. Headquarters, Cleveland, Ohio.

Walter U. Appleton, general master mechanic, Intercolonial Railway and the Prince Edward Island Railway. Headquarters, Moncton, N. B.

J. C. Basford, assistant road foreman of engines, Philadelphia district, Baltimore and Ohio Railroad. Headquarters, Philadelphia, Pa.

George E. Beck, chief signal inspector, Lake Shore and Michigan Southern Railway. Headquarters, Cleveland, Ohio.

H. T. Bentley, superintendent of motive power and machinery, Chicago and Northwestern. Headquarters, Chicago, Ill.

Charles Bowersox, master mechanic, Toledo & Ohio Central and Zanesville & Western railways. Headquarters, Bucyrus, Ohio.

H. G. Castron, master mechanic, Chicago, Burlington & Quincy Railway. Headquarters, Brookfield, Mo.

G. H. Cumberland, division engineer, Oregon Short Line Railroad. Headquarters, Pocatello, Idaho.

Gilbert Dempster, master mechanic, Southern Railway Co. Headquarters, Columbus, Miss.

C. E. Denney, special engineer, New York Central Lines West. Headquarters, Chicago, Ill.

J. A. Donahey, superintendent and chief engineer, Akron, Canton and Youngstown Ry. Headquarters, Akron, Ohio.

W. J. Fraudendiener, master mechanic, Eastern division, Cleveland, Cincinnati, Chicago & St. Louis. Headquarters, Bellefontaine, Ohio.

W. J. Frey, supervisor of materials, Lake Shore and Michigan Southern. Headquarters, Cleveland, Ohio.

George H. Funk, chief smoke inspector for all railroads entering Cincinnati, Ohio.

R. D. Garner, engineer of construction, Southern New England Railroad Corporation and the Southern New England Railway Co. Headquarters, Providence, R. I.

Joseph Graham, superintendent of locomotive shops, Intercolonial and Price Edward Island Railways. Headquarters, Moncton, N. B.

P. H. Hamilton, terminal roadmaster, St. Louis and San Francisco Railroad. Headquarters, Memphis, Tenn.

E. S. Heyser, division engineer, St. Louis, Brownsville and Mexico Railway. Headquarters, Kingsville, Texas.

F. Hodnapp, road foreman of engines, Illinois division, Baltimore and Ohio Southwestern R.R. Headquarters, Flora, Ill.

Mark Jefferson, assistant master mechanic, Lehigh Valley Railroad. Headquarters, Easton, Penna.

C. W. Johnson, consulting engineer, Chicago, St. Paul, Minneapolis & Omaha Ry. Headquarters, St. Paul, Minn.

F. W. Kane, assistant chief engineer, Missouri, Kansas & Texas Railway. Headquarters, Dallas, Texas.

R. G. Kenly, chairman of valuation committee, Minneapolis & St. Louis Railroad.

P. H. Kilpatrick, chief engineer, Texas City Terminal Co. Headquarters, Texas City, Texas.

B. D. King, roadmaster, Lake Erie and Western R. R. Headquarters, Lima, Ohio.

Hugh D. Mackenzie, division master mechanic, Intercolonial Railway. Headquarters, Stellarton, N. S.

C. A. McCarthy, master mechanic, Colorado Springs & Cripple Creek District Railway. Headquarters, Colorado Springs, Colo.

B. B. Milner, special engineer, New York Central Lines. Headquarters, New York City.

H. S. Mored, master mechanic, Chicago, Burlington and Quincy Railroad. Headquarters, Aurora, Ill.

George A. Moriarity, master mechanic, New York, New Haven and Hartford R. R. Headquarters, Boston, Mass.

W. W. Morrison, engineer maintenance of way and structures, Pittsburgh and Shawmut R. R. Headquarters, Kittanning, Pa.

J. E. O'Brien, assistant mechanical superintendent, Missouri Pacific and St. Louis, Iron Mountain and Southern. Headquarters, St. Louis, Mo.

W. J. O'Neill, master mechanic, Pan Handle and Indian Territory divisions, Rock Island Lines. Headquarters, Shawnee, Okla.

S. H. Osborne, division engineer, Oregon Short Line Railroad. Headquarters, Pocatello, Idaho.

H. H. Parker, general foreman, Seaboard Air Line Ry. Headquarters, Portsmouth, Va.

Robert Quayle, general superintendent of motive power and car departments, Chicago and Northwestern. Headquarters, Chicago, Ill.

Herman Rettinghouse, chief engineer, Chicago and Northwestern Railway. Headquarters, St. Paul, Minn.

J. B. Roach, master mechanic, Chicago, Burlington and Quincy Railroad. Headquarters, Beardstown, Ill.

J. A. Rohrer, roadmaster, Atchison, Topeka and Santa Fe Ry. Coast Lines. Headquarters, Dalies, N. M.

W. F. Ross, road foreman of engines, Wheeling division, Baltimore and Ohio Railroad. Headquarters, Wheeling, W. Va.

W. C. Schneider, chief draughtsman in car department, Grand Trunk Pacific Ry. Headquarters, Transcona, Man.

George E. Smart, master car builder, Intercolonial Railway and the Prince Edward Island Ry. Headquarters, Moncton, N. B.

E. W. Smith, assistant master mechanic, Philadelphia, Baltimore and Washington Railroad. Headquarters, Wilmington, Del.

N. L. Smitham, master mechanic, Missouri, Kansas and Texas Railway. Headquarters, Bellmead, Texas.

G. M. Stone, master mechanic, Oklahoma division, Rock Island Lines. Headquarters, Chickasha, Okla.

E. M. Sweetman, master mechanic, Southern Railway. Headquarters, Princeton, Ind.

D. R. Sweney, master mechanic, Chicago, Burlington and Quincy Railroad. Headquarters, Ottumwa, Iowa.

K. Tate, assistant master mechanic, Eastern division, Cleveland, Cincinnati, Chicago & St. Louis. Headquarters, Bellefontaine, Ohio.

I. M. Taylor, roadmaster, Northern Pacific Railway. Headquarters, Forsyth, Mont.

F. M. Thomson, assistant engineer, Houston and Texas Central. Headquarters, Ennis, Texas.

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C. H. Tillett, supervisor of signals, eastern lines, Grand Trunk Railway. Headquarters, Montreal, Que.

F. B. Walker, assistant engineer, Chicago, Milwaukee and St. Paul Ry. Headquarters, Lewiston, Mont.

Z. B. Warner, chief engineer, Chicago, Rock Island and Michigan Southern. Headquarters, Ft. Worth, Texas.

H. R. Warnock, superintendent, motive power, Western Maryland Railway. Headquarters, Hagerstown, Md.

Frederick B. Weigand, signal engineer, Lake Shore and Michigan Southern Ry. Headquarters, Cleveland, Ohio.

Harry Whitham, division foreman, Atchison, Topeka & Santa Fe Coast Lines. Headquarters, Gallup, N. Mex.

E. M. Wilcox, general car foreman, Chicago, Indiana & Southern Railroad. Headquarters, Gibson, Ind.

Operation.

R. F. Armstrong, superintendent, Iowa and Minnesota divisions, Chicago and Northwestern. Headquarters, Mason City, Ia.

G. W. Bennett, assistant superintendent, Middle and Pittsburgh divisions, Buffalo, Rochester and Pittsburgh Ry. Headquarters, Indiana.

M. H. Broughton, supervisor of transportation, Baltimore and Ohio Railroad.

H. F. Burch, trainmaster, Delaware and Hudson. Headquarters, Mechanicville, New York.

C. H. Calkins, chief trainmaster, Buffalo division, New York Central & Hudson River Railroad. Headquarters, Buffalo, N. Y.

William H. Carter, trainmaster, Cincinnati-Sandusky division, Cleveland, Cincinnati, Chicago and St. Louis Ry. Headquarters, Springfield, Ohio.

W. B. Causey, superintendent, Northern division, Chicago Great Western Railway. Headquarters, St. Paul, Minn.

T. M. Coughlin, assistant superintendent, Ashland division, Chicago and Northwestern. Headquarters, Antigo, Wis.

O. E. Coyne, trainmaster, Missouri Pacific. Headquarters, Jefferson City, Mo.

R. F. Dawson, assistant superintendent, Middle and Pittsburgh divisions, Buffalo, Rochester and Pittsburgh Railway. Headquarters, DuBois.

Edward J. Devans, general superintendent in charge of transportation operations, Buffalo, Rochester & Pittsburgh Ry. Headquarters, Rochester, N. Y.

J. A. Donahey, superintendent and chief engineer, Akron, Canton & Youngstown Ry. Headquarters, Akron, Ohio.

Dana C. Douglass, general manager in charge of operating department, Maine Central. Headquarters, Portland, Me.

James P. Fallon, trainmaster, Cincinnati Terminal division, Baltimore and Ohio Southwestern. Headquarters, Cincinnati, Ohio.

W. J. Feiser, trainmaster, Lake Erie and Western Railroad. Headquarters, Lima, Ohio.

David B. Fleming, superintendent, Buffalo division, New York Central and Hudson River R. R. Headquarters, Buffalo, N. Y.

Frank H. Flynn, superintendent, Fitchburg division, Boston and Maine Railroad. Headquarters, Boston, Mass.

W. H. Fogg, trainmaster, Chicago, Indianapolis & Louisville Railway. Headquarters, Lafayette, Ind.

G. H. Folger, superintendent, Terminal division, Boston and Maine Railroad. Headquarters, Boston, Mass.

C. H. Fox, superintendent, Sumpter Valley Railroad. Headquarters, Baker, Oregon.

D. S. Fraser, superintendent of sleeping, dining and parlor car service, Canadian Pacific Ry. Headquarters, Calgary, Alta.

J. S. Gilmore, assistant trainmaster, Eastern district, Chicago division, Baltimore and Ohio Railroad. Headquarters, Garrett, Ind.

C. C. Grimm, trainmaster of Baltimore and Ohio Railroad. Headquarters, Newark, Ohio.

W. M. Haver, trainmaster, Monongah division, Baltimore and Ohio R. R. Headquarters, Clarksburg, W. Va.

T. J. Hayes, superintendent, Michigan division, Cleveland, Cincinnati, Chicago & St. Louis Ry. Headquarters, Indianapolis, Ind.

W. J. Henry, chief train despatcher, Missouri Pacific Railroad. Headquarters, Jefferson City, Mo.

W. V. Holmes, superintendent of transportation, Panama Railroad.

G. N. Howson, superintendent, St. Louis and Louisville division, Southern Railway. Headquarters, Louisville, Ky.

John S. King, terminal trainmaster, Cincinnati, New Orleans and Texas Pacific. Headquarters, Cincinnati, Ohio.

G. W. Landon, agent, operating department, Baltimore and Ohio Southwestern Railroad. Headquarters, North Bend, Ohio.

T. C. McCarthy, trainmaster, Buffalo and Rochester divisions, Buffalo, Rochester and Pittsburgh Railway. Headquarters, East Salamanca.

E. E. McCarty, trainmaster, First district, Atchison, Topeka and Santa Fe Railway Coast Lines. Headquarters, Needles, Cal.

M. G. McInerney, superintendent, Buffalo and Rochester divisions, Buffalo, Rochester and Pittsburgh Railway. Headquarters, Rochester, New York.

E. E. McLellan, general superintendent, San Benito & Rio Grande Valley Railroad. Headquarters, San Benito, Tex.

J. R. Mann, superintendent of transportation, Detroit and Toledo Shore Line. Headquarters, Detroit, Mich.

C. S. Millard, acting superintendent, Chicago division, Cleveland, Cincinnati, Chicago and St. Louis Railway. Headquarters, Indianapolis, Ind.

D. O. Ouellet, trainmaster, Missouri Pacific Railway. Headquarters, Sedalia, Mo.

B. E. Palmer, superintendent, First division, Oregon-Washington R. R. and Navigation Company. Headquarters, Portland, Oregon.

H. E. Patterson, assistant superintendent, Buffalo and Rochester divisions, Buffalo, Rochester and Pittsburgh Railway. Headquarters, East Salamanca.

F. E. Patton, superintendent, Southern Railway. Headquarters, Columbus, Miss.

A. W. Porter, superintendent of sleeping, dining and parlor car service, Canadian Pacific Railroad. Headquarters, Moose Jaw, Sask.

F. W. Quimby, train rule examiner, Chicago Indianapolis & Louisville Railway. Headquarters, Lafayette, Ind.

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F. A. Redmond, manager, fuel oil properties, Gulf, Colorado and Santa Fe.

Howard E. Riggs, chief train despatcher, Chicago, Indianapolis and Louisville Ry. Headquarters, Lafayette, Ind.

Fred. Smith Risley, assistant superintendent, Mohawk division, New York Central & Hudson River R. R. Headquarters, Albany, New York.

D. H. Robinson, assistant superintendent, Missouri Pacific Railway. Headquarters, Sedalia, Mo.

John Rourke, superintendent, Portland division, Boston and Maine R. R. Headquarters, Concord, N. H.

C. A. Shoemaker, superintendent, Southern division, Chicago Great Western Railway. Headquarters, Des Moines, Iowa.

S. A. Simpson, superintendent of sleeping, dining and parlor car service, Canadian Pacific Railway. Headquarters, Winnipeg, Man.

J. T. Slattery, superintendent, Second division, Denver and Rio Grande. Headquarters, Salida, Colo.

W. T. Snyder, assistant superintendent, Panama Railroad.

James Spellen, assistant superintendent, Middle and Pittsburgh divisions, Buffalo, Rochester and Pittsburgh Railway. Headquarters, Butler.

James D. Tyter, general superintendent, Boston and Maine. Headquarters, Boston Mass.

N. A. Waldron, superintendent, Missouri, Kansas & Texas Railway. Headquarters, Parsons, Kansas.

E. P. Welshonce, trainmaster, west end, Cumberland division, Baltimore and Ohio Railroad. Headquarters, Keyser, W. Va.

C. A. Wickersham, general manager, Georgia Railroad. Headquarters, Augusta, Ga.

M. J. Wise, assistant to the general manager, Southern Railway. Headquarters, Columbus, Miss.

A. R. Wood, trainmaster, First district, Albuquerque division, Atchison, Topeka and Santa Fe Lines. Headquarters, Gallup, N. M.

C. Woodard, assistant superintendent, Texas and New Orleans Railroad. Headquarters, Houston, Texas.

W. L. Wroe, assistant superintendent, Texas and New Orleans Railroad and the Galveston division of the Galveston, Harrisburg and San Antonio Railway. Headquarters, Houston, Texas.

Edward Ziegler, superintendent of terminals, Cleveland, Cincinnati, Chicago & St. Louis Ry. Headquarters, Cincinnati, Ohio.

Traffic.

J. E. Allen, assistant general freight agent, St. Louis Southwestern. Headquarters, St. Louis, Mo.

Frank Armstrong, local freight agent, Chicago, Burlington & Quincy Railroad. Headquarters, Chicago, Ill.

W. W. Avery, assistant general passenger agent, Kansas City Southern. Headquarters, Kansas City, Mo.

J. B. Baird, freight traffic manager, Northern Pacific. Headquarters, St. Paul, Minn.

J. C. Beam, assistant general passenger agent, Southern Railway. Headquarters, Atlanta, Ga.

C. A. Benscoter, assistant general passenger agent, Southern Railway. Headquarters, Knoxville, Tenn.

C. D. Bersaw, general agent, Atlanta, Birmingham & Atlantic Railroad. Headquarters, Cordele, Ga.

H. L. Bishop, division passenger agent, Southern Railway. Headquarters, Richmond, Va.

P. W. Booth, traveling freight agent, Intercolonial and Great Northern Railway. Headquarters, San Antonio, Texas.

D. M. Bowman, assistant general passenger agent, Cleveland, Cincinnati, Chicago & St. Louis. Headquarters, Cincinnati, Ohio.

G. F. Boyce, general agent, Chicago, Great Western. Headquarters, Rochester, Minn.

B. T. Breckinridge, commercial agent, Illinois Central Railroad. Headquarters, Evansville, Ind.

Brooks G. Brown, assistant general freight agent, Southern Railway. Headquarters, Atlanta, Ga.

C. M. Brown, rate clerk in the general passenger department, Minneapolis and St. Louis. Headquarters, Minneapolis, Minn.

S. E. Burgess, division passenger agent, Southern Railway. Headquarters, Philadelphia.

Wilfred S. R. Cameron, general agent, Chicago, St. Paul, Minneapolis & Omaha. Headquarters, Winnipeg, Man.

Roy B. Campbell, city ticket and passenger agent, Minneapolis and St. Louis. Headquarters, Des Moines, Iowa.

W. H. Chevers, general agent, Union Pacific and Oregon Short Line. Headquarters, Ogden, Utah.

W. S. Cornell, assistant general freight agent, St. Louis Southwestern. Headquarters, St. Louis, Mo.

F. P. Cruice, assistant general freight and passenger agent, Santa Fe Coast Lines. Headquarters, Prescott, Ariz.

F. D. Daggett, assistant general passenger agent, San Antonio and Aransas Pass. Headquarters, San Antonio, Texas.

M. W. Dancey, city passenger agent, Chicago and Alton R. R. Headquarters, Springfield, Ill.

F. B. Dickinson, traveling passenger agent, Cincinnati, Hamilton and Dayton Railway. Headquarters, Dayton, Ohio.

Edward A. Dye, traveling agent, Chicago, St. Paul, Minneapolis and Omaha. Headquarters, Vancouver, B. C.

J. C. Eaton, general agent, passenger department, Northern Pacific Railroad. Headquarters, Cincinnati, Ohio.

T. F. Ellzey, traveling freight agent, Missouri, Pacific; Denver and Rio Grande and Western Pacific Railways. Headquarters, New Orleans, La.

P. N. Estes, traveling passenger agent, Southern Railway. Headquarters, Memphis, Tenn.

E. R. Eudaly, agent of livestock, dairy and poultry division freight traffic department, Queen and Crescent Route. Headquarters, Chattanooga, Tenn.

G. A. Fisher, traveling passenger agent, the Southern Railway. Headquarters, Cleveland, Ohio.

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B. W. Fredenburg, commercial agent, Illinois Central Railway. Headquarters, Evansville, Ind.

H. P. Friedman, division freight agent, Southern Railway. Headquarters, Norfolk, Va.

H. P. Graham, soliciting freight agent, Southern Railway. Headquarters, Huntsville, Ala.

P. H. Graus, traveling freight agent, Puget Sound Naval route. Headquarters, Seattle, Wash.

D. G. Gray, general freight agent, Western Maryland. Headquarters, Baltimore, Md.

C. F. Gourley, New England passenger agent, Boston and Maine Railroad. Headquarters, Boston, Mass.

M. J. Hannam, general freight and passenger agent, San Antonio, Uvalde and Gulf Railroad. Headquarters, San Antonio, Texas.

L. W. Hazlehurst, assistant commercial agent, Illinois Central Railroad. Headquarters, Chicago, Ill.

J. I. Hazzard, general agent, Blue Ridge Despatch.

Alexander Hilton, passenger traffic manager, St. Louis & San Francisco Railway. Headquarters, St. Louis, Mo.

R. T. Hughes, traveling passenger agent, the Erie. Headquarters, San Francisco, Cal.

N. Hussey, soliciting freight agent, Cincinnati, New Orleans & Texas Pacific and the Alabama Great Southern. Headquarters, Charlotte, N. C.

George A. Jobes, traveling immigration agent, Northern Pacific Railroad. Headquarters, Cincinnati, Ohio.

M. H. Jacobs, assistant general freight agent, Western Maryland Railroad. Headquarters, Pittsburgh, Pa.

C. H. Jasper, district freight and passenger agent, Southern Pacific Company. Headquarters, Fresno, Cal.

W. L. Kendall, agent, Erie Despatch. Headquarters, Cedar Rapids, Iowa.

S. D. Kiser, city ticket agent, Southern Railway. Headquarters, Richmond, Va.

J. J. Livingston, general agent, Chicago & Northwestern Ry. Headquarters, Des Moines, Iowa.

A. B. Lucky, city passenger agent, Cincinnati, Hamilton & Dayton. Headquarters, Cincinnati, Ohio.

E. A. McDonald, city ticket agent, Southern Railway. Headquarters, Washington, D. C.

George McDougall, dairy agent, Cleveland, Cincinnati, Chicago and St. Louis Ry. Headquarters, Indianapolis, Ind.

O. B. McNamee, traveling freight agent, of the Rock Island. Headquarters, St. Louis, Mo.

B. M. McNeff, traveling passenger agent, Cincinnati, Hamilton and Dayton Railway. Headquarters, Toledo, Ohio.

J. L. Meek, assistant general passenger agent, Southern Railway. Headquarters, Chattanooga, Tenn.

Elmer Mitchell, traveling passenger agent, Beaumont, Sour Lake and Western Railway. Headquarters, Ft. Worth, Texas.

Fred E. Mitchell, commercial agent, Kansas City, Mexico and Orient Railway. Headquarters, Fort Worth, Texas.

Daniel L. Moorman, northern passenger agent, Cincinnati, Hamilton & Dayton Railway. Headquarters, Detroit, Mich.

Joseph P. O'Donell, traffic manager, Kansas City, Mexico and Orient Railway. Headquarters, San Angelo, Texas.

R. G. Parish, city passenger and ticket agent, Southern Railway. Headquarters, Columbus, Ga.

W. H. Pennick, traveling passenger agent, Beaumont, Sour Lake and Western Ry. Headquarters, Houston, Texas.

W. C. Pfeifer, traveling freight agent, Illinois Central R. R. Headquarters, Detroit, Mich.

Harry H. Pierce, traveling passenger agent, Hocking Valley Railway. Headquarters, Columbus, Ohio.

W. R. Pillsbury, traveling freight and passenger agent, Chicago, Burlington and Quincy Railroad. Headquarters, Dallas, Texas.

C. T. Randall, traveling freight agent, Minneapolis, St. Paul and Sault Ste. Marie. Headquarters, Cincinnati, Ohio.

D. M. Reynolds, traveling freight agent, Ann Arbor. Railroad. Headquarters, Pittsburgh, Pa.

J. W. Rhodes, export and import agent, Illinois Central Railroad. Headquarters, Chicago, Illinois.

John T. Rich, passenger agent, Southern Railway. Headquarters, Washington, D. C.

H. B. Rogers, commercial agent, Southern Ry. Headquarters, Norfolk, Va.

I. W. Rouzer, general agent, Atlanta, Birmingham & Atlantic R. R. Headquarters, Birmingham, Ala.

J. H. Schneider, contracting freight agent, Cincinnati, Hamilton and Dayton Railway. Headquarters, Cincinnati, Ohio.

J. E. Shipley, assistant general passenger agent, Tennessee Central Railroad. Headquarters, Nashville, Tenn.

H. E. Shutt, contracting freight agent, Illinois Central Railroad. Headquarters, Detroit, Mich.

William J. Smith, traveling freight and passenger agent, El Paso and Southwestern and the Morenci Southern. Headquarters, New York City.

R. G. Smock, commercial agent, Rock Island Lines. Headquarters, Des Moines, Ia.

Charles Sorg, Jr., commercial agent, Fort Worth, Texas.

P. A. Sullivan, traveling freight agent, South Texas and Louisiana Lines, St. Louis and San Francisco system. Headquarters, San Antonio, Texas.

John S. Talbot, general agent, Chicago and Northwestern. Headquarters, Indianapolis, Ind.

E. S. Taylor, eastern agent, Pullman Company. Headquarters, New York.

Garland Tobin, district passenger agent, Missouri Pacific, St. Louis, Iron Mountain & Southern, Denver & Rio Grande and Western Pacific railways. Headquarters, Birmingham, Ala.

E. W. Trott, traveling freight agent, Missouri and North Arkansas Railroad. Headquarters, Joplin, Mo.

Rudolph Turk, city ticket agent, Southern Ry. Headquarters, Raleigh, N. C.

W. F. Van Norte, traffic manager, Ashley, Drew and Northern Railroad. Headquarters, Crossett, Ark.

E. B. Webb, general agent, Western Maryland Headquarters, Chicago, Ill.

E. A. Weiberg, district passenger agent, Chi-

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cago and Alton Railroad. Headquarters, Peoria, Ill.

F. N. Westerman, assistant general passenger agent, Southern Railway. Headquarters, St. Louis, Mo.

C. W. Westbury, assistant general agent, Southern Railway. Headquarters, Washington, D. C.

W. C. Wherritt, contracting agent, Louisville and Nashville. Headquarters, New Orleans, La.

V. E. Whitaker, general agent, Atlanta, Birmingham & Atlantic Railroad. Headquarters, Atlanta, Ga.

H. R. Wilson, commercial agent, New Orleans Great Northern Railroad. Headquarters, Jackson, Miss.

Industrial.

George A. McNicholl, commissioner of the colonization and industrial department, Grand Trunk Pacific. Headquarters, Prince Rupert, B C.

Purchasing.

D. C. Curtis, scrap expert, Panama Canal Commission. Headquarters, Colon, Panama.

F. W. Kettle, storekeeper, Baltimore and Ohio Railroad. Headquarters, Garrett, Ind.

J. M. Killian, storekeeper, St. Louis & Southwestern Railway. Headquarters, Pine Bluff, Ark.

C. F. Robinson, storekeeper, Baltimore and Ohio Railroad. Headquarters, New Castle Junction, Pa.

William R. Shoop, manager of purchases and stores, Buffalo, Rochester and Pittsburgh Ry. Headquarters, Rochester, N. Y.

N. A. Waldron, general storekeeper, Missouri, Kansas & Texas Railroad. Headquarters, Parsons, Kansas.

F. C. Winter, storekeeper, Baltimore and Ohio Railroad. Headquarters, Keyser, W. Va.

Miscellaneous.

C. Peter Clarke, chief of the rate and tariff bureau, Public Service Commission.

RESIGNATIONS.

Executive.

H. M. Atkinson, co-receiver, Atlanta, Birmingham and Atlantic Railroad.

T. E. Byrnes, vice-president, New York, New Haven and Hartford Railroad.

Major Charles Hine, vice-president, Southern Pacific of Mexico and the Arizona Eastern railways.

Charles Howard, president, Muscatine North and South Railway.

D. H. McKee, vice-president and treasurer, Muscatine North and South Railway.

Lucius Tuttle, chairman of the board of directors, New Haven Road.

Legal.

George B. Steele, assistant to the general attorney, Denver and Rio Grande Railroad.

James G. Wilson, general attorney and Commerce counsel, Southern Pacific Company.

F. H. Wood, commerce counsel, St. Louis and San Francisco.

Financial.

Silas W. Bretzfield, assistant treasurer and eastern purchasing agent, Pullman Company.

J. A. Coe, secretary, Muscatine North & South Railway.

Accounting.

A. H. Kohlhammer, auditor, Muscatine North & South Railway.

W. R. Mozier, auditor, Pacific and Idaho Northern Railway.

F. C. Uhlman, auditor, Virginia Railway.

Engineering and Mechanical.

R. A. Becker, supervisor of signals, eastern lines, Grand Trunk Railway.

F. E. Bissell, superintendent and chief engineer, Akron, Canton and Youngstown Railway.

J. R. Coulston, roadmaster, Lake Erie and Western Railroad.

F. J. Herlihy, assistant engineer, Chicago, Milwaukee and St. Paul Railway.

P. H. Kilpatrick, chief engineer, Texas City Terminal Co.

J. T. Luscombe, master mechanic, Eastern division, Cleveland, Cincinnati, Chicago & St. Louis.

C. A. McCarthy, master mechanic, Pan Handle and Indian Territory divisions, Rock Island Lines.

B. B. Milner, assistant master mechanic, Philadelphia, Baltimore and Washington Railroad.

H. E. Passmore, master mechanic, Toledo & Ohio Central R. R.

P. H. Smith, chief engineer, Texas City Terminal Company.

H. M. Stone, chief engineer, Chicago, Rock Island and Gulf Railway.

C. M. Tritsch, superintendent of motive power, Western Maryland Railway.

Operation.

F. W. Brown, superintendent, St. Louis and Louisville divisions, Southern Railway.

A. Q. Campbell, assistant superintendent, Oregon Short Line R. R.

C. E. Carson, superintendent, Northern division, Chicago Great Western.

F. M. Dow, superintendent of dining service, Illinois Central Railroad.

W. T. Egan, trainmaster, Baltimore and Ohio Railroad.

E. S. Heyser, general superintendent, San Benito and Rio Grande Valley.

C. E. McMullin, superintendent, Portland division, Boston and Maine R. R.

H. Rettinghouse, superintendent, Iowa and Minnesota division, Chicago and Northwestern Railway.

Thomas K. Scott, general manager, Georgia Railroad.

J. D. Stack, division superintendent, Oregon-Washington Railroad and Navigation Company.

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C. Woodard, assistant superintendent, Texas and New Orleans and the Galveston division, Galveston, Harrisburg and San Antonio Railroad.

Traffic.

L. N. Andrews, local freight agent, Wabash Railroad.

J. Lee Barrett, northern passenger agent, Cincinnati, Hamilton and Dayton Railroad.

G. A. Cartwright, general agent, Atlanta, Birmingham & Atlantic Railway.

C. R. Chesney, traveling passenger agent, Southern Railway.

Frank Eversman, city passenger agent, Cincinnati, Hamilton and Dayton.

W. P. Kernan, agent, Erie Despatch.

H. M. McGinnis, general agent, Chicago, St. Paul, Minneapolis and Omaha Railway.

F. W. Mager, contracting freight agent, Cincinnati, Hamilton and Dayton Railway.

George W. Metzger, passenger agent, Pennsylvania Lines, Chicago.

C. F. Miley, general agent, Chicago & Northwestern Ry.

F. A. Nelson, traffic manager, Kansas City, Mexico & Orient Railway.

Joseph P. O'Donnell, commercial agent, Kansas City, Mexico and Orient Ry.

J. E. Pierce, dairy agent, Cleveland, Cincinnati, Chicago and St. Louis Ry.

Purchasing.

J. M. Gibbons, general storekeeper, Missouri, Kansas & Texas Railway.

N. A. Waldron, storekeeper, St. Louis and Southwestern Ry.

OBITUARY.

William E. Barnett, former vice-president of the New York, New Haven & Hartford R. R., who has been in ill health for some time, died October 10th, at Pinehurst, N. C. Mr. Barnett was born February 20, 1845, at Charleston, S. C. He was graduated from Yale University, class of 1864 and later attended Albany Law School. He entered railway service with the New York, New Haven & Hartford R. R. in 1869, as president's secretary. In 1887 he became executive secretary and later was attorney for the company. Mr. Barnett was elected third vice-president at the head of the department of law, real estate and taxes in January, 1900, and he served in that capacity until 1904 when he was compelled to retire on account of ill health.

Frank E. Brown, first assistant general passenger agent of the Boston & Maine, at Boston, Mass., died at his home in Concord, N. H., on October 27th. He was born in 1850, at Claremont, N. H., and entered railway work in August, 1868. He was clerk and bookkeeper in the cashier's office, until 1880, and was subsequently superintendent's clerk and then was general ticket agent of the Concord Railroad. From January, 1890, to July, 1895, he was general passenger and ticket agent of the Concord & Montreal, and in July, 1895, was appointed assistant general passenger and ticket agent of the Boston & Maine (which absorbed the C. & M.), with headquarters at Concord. Since October, 1910, he had been first assistant general passenger agent, and also was general passenger agent of the Mount Washington Railway.

Benjamin W. Carskaddon, real estate agent of the Pennsylvania Railroad, with office at Philadelphia, Pa., died on October 23rd, at Atlantic City, N. J. He was born in February, 1858, at Philadelphia, and received a public school education in that city. He studied conveyancing and attended the real estate law course at the University of Pennsylvania. In February, 1879, he entered the service of the Pennsylvania Railroad in the office of the general solicitor as a conveyancer; but he resigned three years later to go into the real estate business in Pittsburgh. He returned to the service of the railroad company in March, 1885, as agent at Pittsburgh for the real estate department, and had been in the service ever since. From January, 1893, to January, 1900, he was in the office of the real estate agent at Philadelphia, in charge of the branch of that department relating to the taxation of real estate; and then was assistant real estate agent, until his appointment in May, 1902, as real estate agent in charge of the department. In his capacity as real estate agent, Mr. Carskaddon has for many years had supervision of the road's real estate transactions, which are numerous and important. One of these was the purchase of the land for the Pennsylvania station and its approaches in and around New York City, involving many millions of dollars and several years' time.

Maxwell Evarts, general counsel of the Southern Pacific with headquarters at New York, died on October 7th, at his summer home at Windsor, Vt. He was born on November 15, 1862, in New York City, and graduated from Yale University in 1884, and went to Harvard Law School. For a time he was engaged in law work in the office of W. D. Guthrie and was for a time assistant United States district attorney. He spent some time in the West on a ranch, and his first railway work was as an attorney for the Southern Pacific in 1893. Shortly after this he gave up private practice almost entirely and had been engaged in law work for the Southern Pacific ever since. His most important work for the Southern Pacific had been in connection with appeals to the United States Supreme Court. He argued nearly all of the cases that were carried to the Supreme Court, either jointly with the counsel that tried the cases in the lower courts or alone. He took Judge Lovett's place as general counsel of the Harriman Lines in October, 1910, and early in 1913, when the Southern Pacific was separated from the Union Pacific he resigned as general counsel of the Union Pacific, remaining with the Southern Pacific as general counsel. He was also a director of the Southern Pacific. Mr. Evarts was a man who took life smilingly and who took a keen interest in his country place in Vermont. A few years ago he served two terms in the Vermont legislature. Mr. Evarts was the son of the late Secretary of State William Maxwell Evarts.

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Charles A. Florence, export and import agent of the Illinois Central at Chicago, died in that city on October 7th. He was born on June 8, 1857, at Chicago, and began railway work in 1877 as a clerk. From 1879 to 1887 he was agent in the Chicago office of the Iowa Railroad Land Company and then to 1890 was traveling passenger agent of the Illinois Central for Canada and had been in the continuous service of that road ever since. From February, to November, 1890, he was New England passenger agent, and then to September, 1897, was general agent of the freight and passenger department for New England at Boston, Mass., becoming general eastern freight agent in September, 1897, at New York. In September, 1910, he was appointed assistant general freight agent at Chicago; in May, 1911, he was made assistant general foreign freight agent, and sinch March, 1912, has been export and import agent of the same road.

Ralph D. Gillett, president of the Hampden Railroad Corporation, a subsidiary of the New York, New Haven & Hartford R. R., died at Westfield, Mass., October 15th, aged 47 years.

William G. Gordon, assistant auditor of the treasury department of the Chicago, Burlington & Quincy, at Chicago, died at his home at Hinsdale, Ill., on November 1st.

William McCullough Grafton, signal engineer of the Pennsylvania Lines West of Pittsburgh, Pa., with headquarters at that city, died on October 10th, at Atlantic City, N. J.

H. W. Hartman, president of the Denver & South Platte, died at Denver, Colo., on September 29th, aged 63 years.

Samuel B. Haupt, president and general manager of the Susquehanna, Bloomsburg & Berwick R. R., died on September 28th, at his home in Milton, Pa., aged 64 years.

D. E. Hooper, supervisor of bridges and buildings of the Southern Railway, at Lawrenceburg, Ky., died October 20th.

S. M. Hudson, auditor of the Fort Worth & Denver City, with headquarters at Fort Worth, Texas, died September 30th, at the Mayo sanitarium at Rochester, Minn., aged 64 years. Mr. Hudson began railway work in May, 1892. He was made auditor of the Fort Worth & Denver City in March, 1899, and had been consulting auditor also of the Wichita Valley since May, 1907.

William A. Ingham, formerly president of the East Broad Top R. R. and Rock Hill Iron & Coal Co., died September 23rd, at Philadelphia, aged 87 years.

Jacob Johann, from 1892 to 1897 superintendent of machinery of the Chicago & Alton, died recently at his home in Springfield, Ill. He was born at Rheinzabern, Bavaria, Germany, on November 15, 1830. He began railway work in November, 1858, and to July, 1861, was assistant to master mechanic on the Missouri Pacific, subsequently for about four years he was master mechanic in shops on the Southwest branch at Pacific City, Mo. From March, 1865, to May, 1868, he was general master mechanic of the Missouri Pacific, and from April, 1870, to January, 1872, held the same position on that road. In October, 1872, he was appointed general master mechanic of the Chicago & Canada Southern, and from June, 1874, to November, 1884, was general master mechanic of the Wabash, St. Louis & Pacific, and then to May of the following year, was superintendent of motive power and machinery of the same road. From July to November, 1885, he was master mechanic of the Missouri, Iowa & Nebraska, now part of the Chicago, Burlington & Quincy, and then to December, 1886, was master mechanic of the Chicago & Atlantic, now part of the Erie. He was appointed superintendent of motive power and rolling stock of the Texas & Pacific at Marshall, Texas, in December, 1886, remaining in that position until June, 1888; subsequently he had charge of the Chicago office of the Safety Car Heating & Lighting Company, and from November 5, 1892, to February, 1897, he was superintendent of machinery of the Chicago & Alton. Previous to entering railway service he was for twelve years employed in various locomotive work.

Joseph Robinson Parrott, president of the Florida East Coast Ry., died at his summer camp at Oxford, Me., October 13th. He had been apparently in normal health but a sudden attack of angina pectoris proved fatal. Mr. Parrott was born at Oxford, Me., October 30, 1859. He was educated at Yale College and Law School and began his railroad career as an attorney with the Jacksonville, Tampa & Key West Ry. He was subsequently general attorney and land commissioner and also, from 1890 to 1892, receiver for the Florida Southern Ry. Mr. Parrott was general counsel of the Jacksonville, St. Augustine & Halifax River Ry., and its successor, the Jacksonville, St. Augustine & Indian River Ry., until 1892. He was elected vice-president of that road in November, 1892. In 1895 the name of the road was changed to the Florida East Coast Ry., and in 1910, Mr. Parrott was elected president. The remarkable development of Florida has followed the building and improvement of the Florida East Coast Ry. This has been the work of Mr. Parrott and the late H. M. Flagler.

E. S. Prindiville, traveling passenger agent of the Chicago, Burlington & Quincy, at Pittsburgh, Pa., died on October 20th, in that city, at the age of 31. He was born in Chicago, and began railway work in October, 1902, as a clerk on the Burlington, and had been in the continuous service of that road ever since. In 1903 he was made cashier, and later became passenger agent. Since 1906 he had been traveling passenger agent of the same road, at Pittsburgh.

Frederick L. Rawlins, superintendent of telegraph of the Southern Pacific Co., died October 17th, in the company's general hospital in San Francisco, Cal., aged 59 years. He had been in railway service since 1873 and had been superintendent of telegraph of the Southern Pacific since June, 1908.

William F. Ray, general superintendent of the Boston & Maine R. R., died suddenly September 26th, at Boston, Mass. Mr. Ray was born at

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South Vernon, Vt., in 1857. He was educated at Fort Wayne and at Notre Dame University, South Bend, Ind., entering the service of the Connecticut River R. R., now a part of the Boston & Maine, in 1874. He was a locomotive fireman, brakeman, freight and passenger conductor, trainmaster and then assistant superintendent. He was appointed superintendent of the Concord division of the Boston & Maine, in 1903, from October, 1911, to October, 1912, was superintendent of the Portland division and since the later date has been general superintendent of the Boston & Maine with office at Boston, Mass.

William Osbourne Sprigg, formerly superintendent of the New York division of the Lehigh Valley, died on October 26th, at his home in Tompkinsville, Staten Island, N. Y. He was born in 1865, at Cumberland, Maryland, and began railway work in March, 1879, as a rodman and levelman on the George's Creek & Cumberland. He was subsequently assistant engineer of the Baltimore & Cumberland Valley, now a part of the Western Maryland; assistant engineer of the Pittsburgh & Western and then to December, 1882, was engineer of construction. In December, 1882, he was appointed master of road on the Baltimore & Ohio, and three years later became engineer of maintenance of way of the New York extension of the same road. From September, 1886, to November, 1894, he was master of transportation of the Staten Island Rapid Transit Railroad, and then was superintendent of the same road. In May, 1897, he was appointed division superintendent of the Southern Railway, and from September, 1898, to August, 1904, was superintendent of the New York division of the Lehigh Valley. He then left railway work to organize the General Contracting & Engineering Company, of which he was president at the time of his death.

F. P. Weymouth, former division superintendent of the Northern Pacific Ry., at Sprague, Wash., and at Spokane, Wash., died October 23rd, in Spokane, aged 76 years.

E. T. White, district superintendent of motive power of the Baltimore & Ohio, at Baltimore, Md., died at his home in that city on September 26th. He was born on October 16, 1858, at Fellowsville, Va., and began railway work in 1874, as a machinist apprentice on the Baltimore & Ohio, remaining in that position for four years. He was then, consecutively, gang foreman, roundhouse foreman, and general foreman of locomotive repairs on the same road, and from June, 1889, to February, 1895, was master mechanic on the Baltimore division. He was then transferred as master mechanic to the Philadelphia division, and from March, 1899, to May, 1905, was superintendent of motive power for the lines east of the Ohio River, and since that time has been successively superintendent of motive power on lines east of the Ohio River and lines in Pittsburgh territory, and superintendent of motive power of the main line. His entire service has been with the Baltimore & Ohio.

Luther Reese Zollinger, engineer maintenance of way of the Pennsylvania Railroad at Philadelphia, Pa., died on October 21st, after a short illness, at his home in Merion, Pa. He was born in Harrisburg, Pa., on April 25, 1865, and graduated from high school and from Lehigh University, with the degree of civil engineer. He entered the service of the Pennsylvania Railroad on March 11, 1889, as a rodman in the office of the division engineer at Harrisburg. From February, 1891, to the following June, he was transitman at Altoona, and then to November, 1895, was assistant to division engineer, Philadelphia division, West Philadelphia. In November, 1895, he became assistant supervisor at Spruce Creek, and in October, 1898, was made supervisor at Norristown, later becoming supervisor at West Philadelphia. From May, 1902, to November, 1903, he was assistant to principal assistant engineer, Pennsylvania Railroad division at Altoona, and then, to April, 1905, was principal assistant engineer of the same division. On April 1, 1905, he was promoted to engineer of maintenance of way of the Pennsylvania Lines East, with office at Philadelphia, and since June 16, 1913, he had been in entire charge of the maintenance department. Mr. Zollinger's entire service had been with the Pennsylvania Railroad.

When caution becomes a habit there will be few accidents.

To avoid danger adopt the safe course.

Energy usually brings success, and success invariably brings energy.

Vigilance and watchfulness promote safety.

Be cautious and alert at all times and under all conditions.

REMEMBER THE RULE: When in doubt, take the safe way.

Half the value of anything to be done is to do it promptly.

No man can be poor with a heart full of hope.

Aim high though the bow break in bending.

Soiling one will never make another clean.

Before crossing and tracks, STOP, LOOK and LIST.

The prevention of accidents is your most important duty.

Increased Efficiency Procured from Heavy Loading of Cars.

(From a Correspondent.)

ONE of the most important problems for both the railroads and the shipping public to solve to-day is the question of Greater Car Efficiency.

In this connection, the following is submitted to indicate to what extent the United States Steel Corporation's constituent companies have been instrumental in creating a car supply during the year 1912 by increasing the average carload from 34 to 36 tons.

A comparative statement of the average carload of outbound traffic for the years 1911 and 1912 for the American Bridge Company, American Sheet and Tin Plate Company, American Steel and Wire Company, Carnegie Steel Company, H. C. Frick Coke Company, Illinois Steel Company, National Tube Company, Pittsburgh Steamship Company, Tennessee Coal, Iron and Railroad Company, and Universal Portland Cement Company produces the following result:

During the year 1911, the average carload was 34.6 tons, and for the year 1912, the average carload was 36.2, or an increase of 1.6 tons per carload. This increase of 3,200 pounds to the aver-

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age carload on outbound shipments means there were 76,105 fewer cars used to handle an equal tonnage as compared with the average carload of the year 1912, based on the outboound traffic of the above ten companies.

Both the shippers and the railroads have been benefited to almost an immeasurable extent in the switching and weighing avoided, i. e., the great saving in operating expenses; switching service on 76,105 cars or 152,210 terminal movements, and the expense of handling this additional number of both empties and loads through the various classification or interchange yards of the railroads from point of shipment to destination.

Figure this in any manner that you may, it will prove conclusively the money value of conserving the present car equipment, not only when there is a severe car famine, but at all times.

To illustrate: One company saved 122 cars by loading only 100 pounds heavier per car during the year 1912.

The record of another company emphasizes the importance of heavier loading perhaps more than any other example, for even with only four hundred pounds per car increase on its traffic means that 15,830 fewer cars were required to move the same tonnage.

Consider what the shippers of the Pittsburgh district generally could accomplish in the way of creating a car supply by increasing the average load per car. Based on the total Pittsburgh district tonnage for the year 1912, an increase in the average carload on approximately the same basis per car, would have resulted in the same tonnage moving in 109,524 fewer cars.

These figures not only indicate the large number of cars that would be available for shippers, as the record made by the U. S. Steel, of two tons but based on an average haul of 100 miles, the increase of 1.6 tons per car would decrease the car mileage 46,952,400 car miles.

While the Pittsburgh district tonnage is merely used as a basis for computation, there can be no question but what even a more remarkable showing could be made in increasing the average carload throughout the country generally, if the railroads would bring this subject before the shipping public.

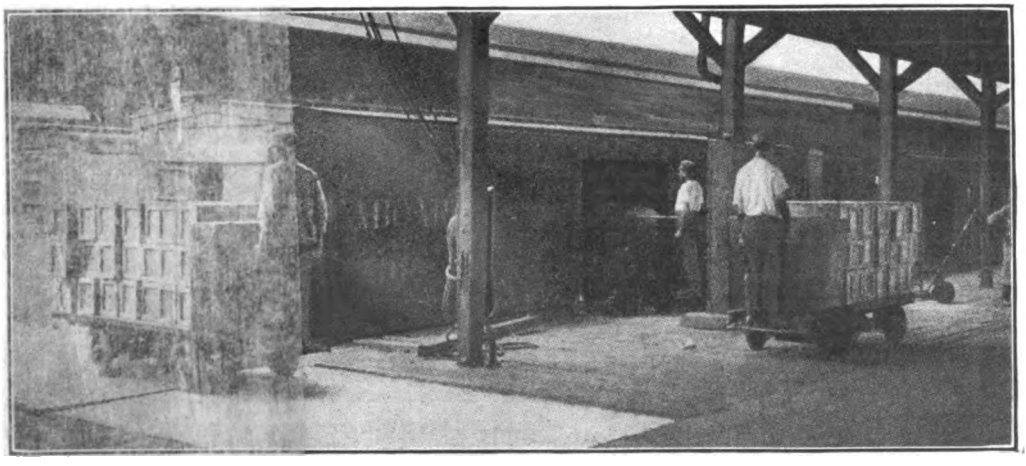
Electrical Trucks in Freight House Service.

ELECTRIC storage battery trucks were first introduced in railway service for the handling of baggage and mail. They have proven a success in this work, and have been installed by a number of prominent railways. More recently the same class of truck has been introduced in freight house service and has been found to be both efficient and economical. Several roads now have them in constant operation, while a number of coatwise and lake steamship lines are finding them of service in helping to solve their terminal problems.

It is reported that the first large installation of this class of truck for the handling of railroad freight was made by the Erie Railroad, by whom twenty-four trucks were installed at its Jersey City terminal on Transfer Pier No. 6. The following detailed comparison of the cost of handling freight for one year after the installation of electric trucks, with the operation with hand trucks for the year before, shows the relative economy in favor of the electric trucks:

Tonnage handled	Electric trucks. 170,170 tons.			Hand trucks. 183,371 tons.		
	No. men.	Amount paid.	Cost per ton.	No. men.	Amount paid.	Cost per ton.
Fixed charges: Foreman, clerks, cooper and sealer	9	$6,425.38	$0.038	9	$6,392.01	$0.035
Checking: checkers and callers	13	8,715.13	.051	17	10,830.23	.059
Labor—Loaders, stevedores, truckers	57	31,455.33	.185	103	54,119.00	.295
Total operating cost	79	$46,595.84	$0.274	129	$71,341.24	$0.389
Decrease with electric trucks				50	$24,745.40	$0.115

In addition to the labor cost for handling the freight the operation of the trucks required a day and night electrician and a helper, the yearly wages of the three men being $2,031.69. The electric current consumed cost $962.22 the trucks averaging a fraction over 7 k. w. per day each. The trucks are charged from a power line supplied by the generating station which furnishes light and power for the Jersey City terminal at night.



ELECTRIC TRUCKS IN RAILWAY SERVICE.

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NOTICE OF ASSESSMENT.

PHILADELPHIA ELECTRIC COMPANY.
New Jersey Office, 419 Market Street, Camden, N. J., Philadelphia Office, S. W. cor. 10th and Chestnut Streets.

NOTICE OF ASSESSMENT.

The stockholders of the Philadelphia Electric Company are hereby notified that by a resolution of the Board of Directors of the said Company, adopted at a meeting held this 28th day of October, 1913, an assessment of five dollars ($5) per share upon shares of stock of said Company subscribed for, being an assessment of twenty per cent. (20%) upon the par value of such shares, has been made and called for, payable to the order of this Company at its office, 1000 Chestnut street, Philadelphia, on or before the 1st day of December, 1913.

You are further notified that an extra dividend of one dollar and fifty cents ($1.50) per share on each share of the stock of the Company has been declared from the surplus arising from the business of the Company, payable on the 1st day of December, 1913, at 1000 Chestnut street, Philadelphia, to the stockholders of record at the close of business on the 20th day of November, 1913.

The transfer books will be closed on the 20th day of November, 1913, at three o'clock P. M., and opened on the third day of December, 1913, at the hour of ten o'clock A. M.

No transfer will be made of any certificate upon which payment of the assessment has not been made.

Stock certificates must be presented when payment is made, in order that the same may be properly indorsed thereon.

Stockholders may pay the assessment by payment of three dollars and fifty cents ($3.50) per share in cash, and by signing and filing with the Company the receipt for the extra dividend of one dollar and fifty cents ($1.50) per share, declared the 28th day of October, 1913, and have the payment of five dollars ($5) indorsed upon the certificate as paid.

By order of the Board of Directors.

A. V. R. COE, Secretary.

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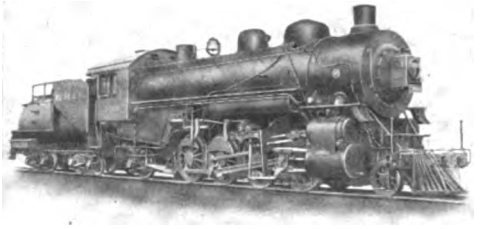

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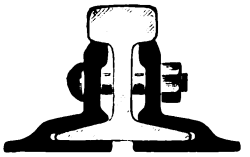

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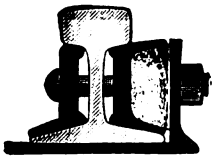

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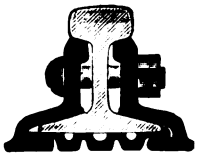

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Lv. North Philadelphia	4.31 P. M.	Ar. North Philadelphia	7.54 A. M.
Lv. Washington	3.10 P. M.	Ar. New York	
Lv. Baltimore	4.20 P. M.	Hudson Terminal	9.40 A. M.
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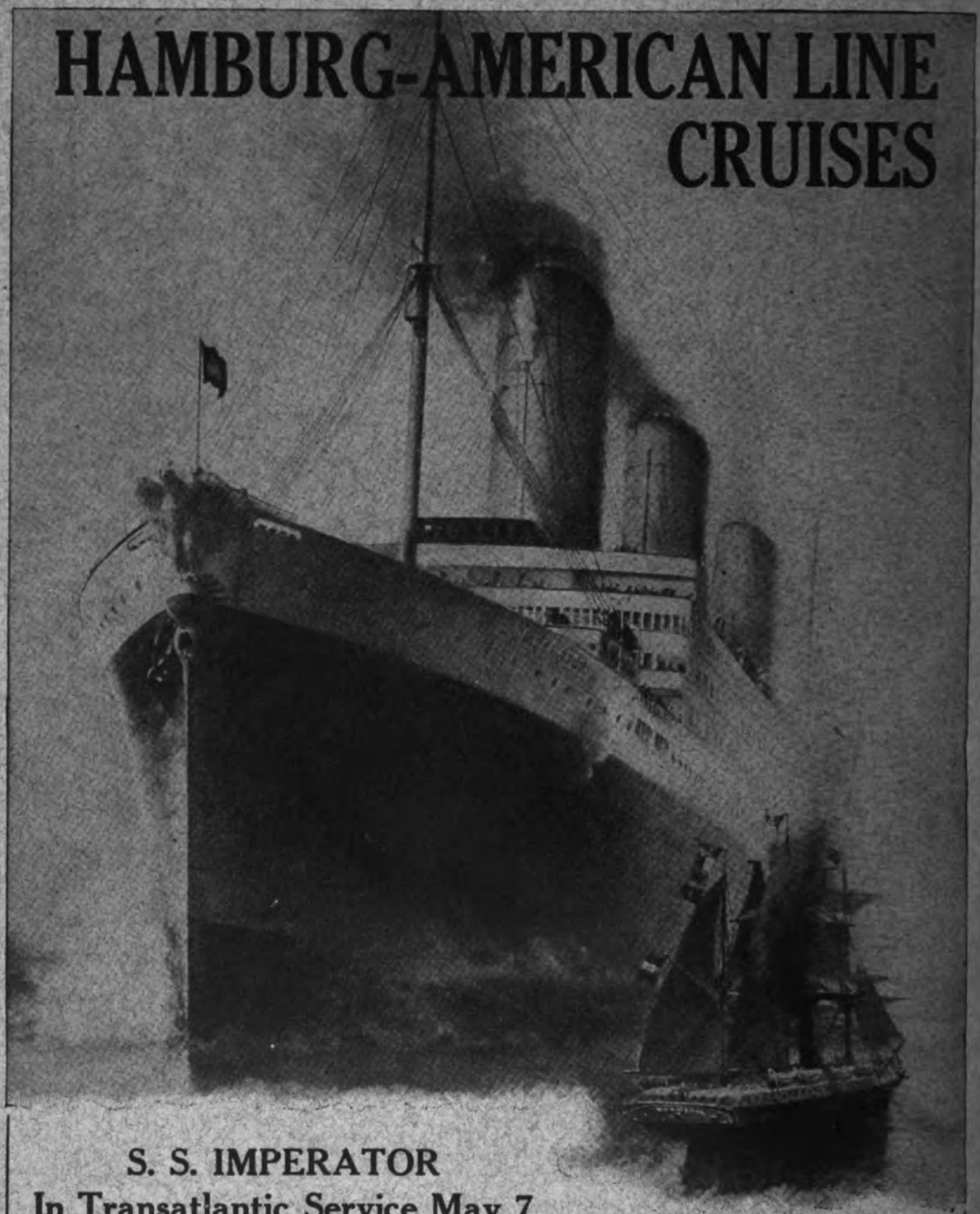

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Railway World

VOLUME LVII ESTABLISHED 1856 NUMBER 12

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Railway World

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Important Developments in the Transportation Field

OPENING PROCEEDINGS IN THE ADVANCE RATE HEARING

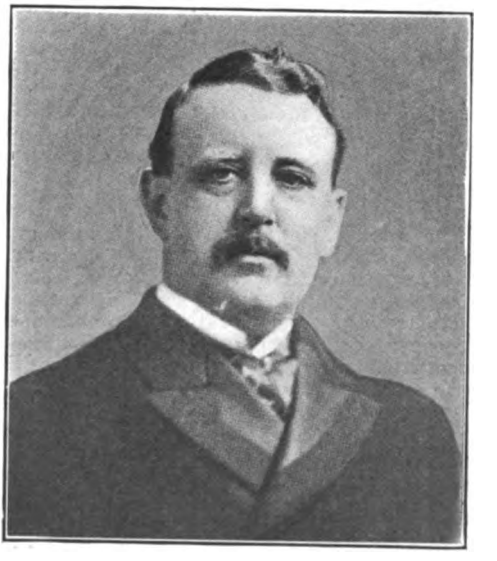
Hearings in the advance rate case through which the railways in Eastern territory hope to procure an increase of five per cent in their freight rates, were begun before the Interstate Commerce Commission on November 24th. In opening the proceedings, Chairman Clark of the Commission took occasion to pay a high tribute to Commissioner Marble, whose sudden death came as a shock to his associates.

George Stuart Patterson, general solicitor of the Pennsylvania Railroad, made a brief preliminary statement for the carriers. He was followed by Daniel Willard, president of the Baltimore and Ohio, whose carefully prepared statement supported by official statistics, plainly set forth the extreme difficulties under which railway operations are being conducted at the present time. Mr. Willard was followed by F. A. Delano, president of the Wabash, who read a statement on behalf of the Central Freight Association lines. The addresses of both President Willard and President Delano will be found reported in full in another section of this issue. Louis D. Brandeis, who has been retained as special attorney for the Commission, and the other attorneys representing both the Commission and the shippers, had nothing to say on the opening day of the hearing, it being understood that the railroads should have an opportunity to present their case in full without cross-examination.

After the statements by Messrs. Willard and Delano, George M. Shriver, chairman of a special committee appointed by the Eastern railroads to prepare accounting exhibits for the case was put on the witness stand. Mr. Shriver produced several voluminous exhibits prepared by the Bureau of Railway Economics. In addition to these, he explained that individual statements would be offered later on behalf of the Pennsylvania system, the New York Central system and the Baltimore and Ohio system, together with combined and individual statements for roads in Central Freight Association territory.

The exhibits filed by Mr. Shriver on November 24th contained the statement of 35 roads and systems, the mileage of which is about 80 per cent of the entire mileage in Official Classification territory and includes also considerable mileage which extends beyond this immediate territory. He said:

> These roads combined own 53,670 miles of line and operate 58,275 miles of line.
>
> The combined property investment at June 30, 1913, is $6,280,571,000, or $117,022 per mile of line and $58,189 per mile of all tracks. Between 1903 and 1913 these roads added to their property investment $1,980,093,000, or an increase of 46.04 per cent.
>
> The total operating revenue, which was $870,783,000 in 1903, rose to $1,424,119,000 in 1913, an increase of over $553,000,000, or 63.54 per cent. Taxes paid by these roads in 1913 aggregated $54,494,000, or 111.44 per cent more than was paid in 1903. Operating expenses, including taxes, hire of equipment and rents, increased in 1913 over 1903, $464,154,000, or 77.15 per cent, so that net operating income increased only $85,317,000, or 33.93 per cent.
>
> The per cent of return on property investment was for the five-year period to 1907, inclusive, 5.96



C. C. McCain.

Chairman of the Trunk Line Association, who explained the methods employed in computing the 5 per cent increase in freight rates.

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per cent and for the second five-year period to 1912, inclusive, only 5.50 per cent. The average return for the ten-year period to 1912, inclusive, was 5.71 per cent and that for 1910 6.28 per cent, compared with 5.23 per cent in 1911, 5.19 per cent in 1912 and 5.36 per cent in 1913.

The total increase in expenses, 1913 over 1903, is distributed through several accounts as follows:

	Am't of increase.	Per ct. of increase.
Maintenance of way	$65,149,000	56.46
Maintenance of equipment..	125,901,000	104.12
Transportation and traffic ..	207,827,000	64.59
General	38,490,000	144.59
Taxes	28,721,000	111.44
Total	$466,088,000	76.35

Mr. Shriver then selected the New York Central, Pennsylvania and Baltimore and Ohio systems for a separate study. These systems, he pointed out, comprise 28,395.14 miles of operated road, and 60,697.03 miles of all tracks operated, or about 47.86 per cent and 52.47 per cent of the road and the track operated, respectively, in the Official Classification territory. Their gross operating revenues for the year was $797,362,913, or 57.53 per cent of the total earnings of roads in this territory, he said. The property investment of the three systems is about $3,253,431,204. This property investment is $1,107,335,816 greater than it was at the close of 1903. Mr. Shriver explained that property investment per mile of road rose from $81,476 in 1903, to $119,275 in 1913, and for all tracks from $44,761 to $55,403.

The address said that while the property investment was increasing 50 per cent during the past ten years, the business handled, as reflected in gross earnings, increased over 63 per cent, the net operating income increasing only about 29 per cent. In other words, the return on new investment was but 3.59 per cent. He continued:

> The average rate of dividends on the capital stock outstanding was in 1903, 5.07 per cent; in 1910, 6.25 per cent, and in 1913, 5.56 per cent.
>
> As against an increase in operating revenue between 1903 and 1913, of about $309,000,000 operating expenses increased $254,000,000. The increase in total operating revenue in 1913 over 1903 is 63 per cent and that in operating expenses almost 76 per cent.

C. M. Bunting took the stand for the Pennsylvania system. He said:

> We have, comparing 1913 with 1910, an increase in tonnage, but a decrease in the average revenue per ton per mile, an increase in operating revenues of 14.03 per cent, an increase of 23.13 per cent in operating expenses, an increase of 36.53 per cent in taxes and a decrease of 13.13 per cent in net operating income, with an increase of 17.56 per cent in the property investment account.
>
> Even if the total freight revenues of the Pennsylvania system in 1913 had been greater by five per cent, the return from operations upon the property investment would have been 6.42 per cent, or only about one per cent greater than the percentage actually realized. The return from operations, even including five per cent additional, would still have been nearly $14,000,000 short of the amount necessary to give the same return upon the property as that earned in 1910, namely, 7.41 per cent.

W. C. Wishart appeared for the New York Central lines. He said:

> The New York Central Lines since June 30, 1910, have added $159,000,000 to the property which they devote to public use. The gross operating income has increased $49,000,000, net operating income has increased $3,765,590 and other income has increased slightly, and yet the whole system had in the year just closed $3,284,720 less net corporate income than in 1910. The dividends declared in 1913 were over four million dollars less than in 1910 notwithstanding the increase of $49,000,000 in the gross operating revenue.

Mr. Shriver took the stand again in behalf of the Baltimore and Ohio system. He said:

> The net operating income, which in 1903 was $24,266,000 and in 1910 $23,999,000, in 1913 was only $23,247,000. While property investment in 1913 increased $115,184,000 over 1903, and the business handled as reflected in operating revenues increased $35,151,000, the net operating income decreased $1,019,000. Comparing 1913 with 1910, while the property investment increased $56,016,000 and the operating revenue increased $13,166,000, the net operating income decreased $751,000. In other words, comparing 1913 with 1903, after increasing property investment 28.66 per cent and increasing gross business 51.56 per cent, there was actually not only no return on the new investment, but an absolute shrinkage of income of over $1,000,000 compared with what it was at the beginning of the period.

The hearing was continued on November 25th, W. C. Maxwell, general traffic manager of the Wabash Railroad, testifying as to the financial condition and results of operations of railroads in the territory between Pittsburgh and Buffalo at one end and the Mississippi River at the other, with the Ohio River at the south—or what is known as Central Freight Association territory.

Mr. Maxwell produced elaborate statistical data concerning 38 railroad companies with 31,937 miles of line, the main features of which may be thus summarized:

Results of operations for all roads in the Central Freight Association territory, while showing in 1913 a gross in-

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crease in operating revenues of $78,000,000 more than for 1910, nevertheless after paying operating expenses and taxes, suffered a loss of $12,000,000 in operating income.

This result was due to an increase in the ratio of operating expenses and taxes to gross, as between 1910 and 1913 from 72 per cent to 78.2 per cent. This showing was made despite the fact that large sums of new capital were invested in additions and betterments. Besides the loss in net revenues for the year ended June 30, 1913, as compared with 1910, the figures for these same 35 roads for the three months of July, August and September, 1913, show a decrease in net operating earnings of $6,937,353, or approximately 20 per cent.

In addition to the tables covering figures for all the roads in this territory, Mr. Maxwell directed special attention to the condition of special groups of roads which, as claimed by F. A. Delano in his opening statement the previous day, were more particularly representative of the "whole situation" in Central Freight Association territory. This group embraces 28 roads with 23,167 miles of road, or 51.5 per cent of the entire mileage in the territory, and including such important lines as the Big Four system, Vandalia, Chicago and Eastern Illinois, Grand Trunk Western, Grand Rapids, Illinois Central, Chicago and Alton and Wabash railroads.

In 1913 roads in this group earned $63,000,000 more than in 1908, which is known as the panic year, and operating expenses and taxes were $62,000,000 more. Net earnings, after paying expenses and taxes, were only $811,000 more than in 1908. The net corporate income of these properties was actually $8,000,000 less than in 1908, although during this five-year period $180,000,000 new capital was put into these properties.

In 1913 the roads in this group earned $36,000,000 more than in 1910; operating expenses and taxes were $45,000,000 more than in 1910, and the net, after operating expenses and taxes, decreased $9,500,000. The corporate income decreased almost $17,000,000. If in 1913 the railroads in this group had been able to operate at the same ratio as in 1910, their net income, after paying taxes, would have been almost $18,000,000 greater than it was. The increase in cost is largely in two items—transportation and maintenance of equipment.

Frank H. Dixon, statistician of the Bureau of Railway Economics, was called by the

C. W. MAXWELL.

General Traffic Manager, Wabash Railroad, who testified regarding the financial condition and result of operations of railroads in Central Freight Association Territory.

railroads to explain various tables which had been prepared under his direction, covering the operation of forty-nine railway systems in the territory applying for the increased rates.

These figures showed that in this territory population had increased from 36,381,000 in 1903 to 42,508,230, or 16.8 per cent, while in the same period railway freight traffic had increased 53.07 per cent. and passenger traffic 41.8 per cent. Yet new railroad mileage had increased but 6.5 per cent.

Although total operating revenue per mile and operating income per mile were greater in 1913 than in 1912 and greater in 1912 than in 1911, the increases of the two years combined have not been sufficient to bring the operating income of the Eastern railways back to the level of the year 1910. Total operating revenues per mile were greater in 1913 than in 1910 by $2,819, or 13.7 per cent, but the increase in expenses more than balanced this increase in revenue, the result being a decrease in net operating revenue per mile of $127, or 1.8 per cent, and a decrease in operating income per mile of $312, or 5 per cent.

Total operating revenues were greater in 1913 than in 1910 by $181,000,000 and operating expenses and taxes and net revenue from outside operations were greater by about $194,500,000, so that operating income showed a decrease approximating $13,500,000. This decrease took place in the face

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of an increase in property investment amounting to more than $600,000,000.

Railway net return for the year 1910 represented 5.7 per cent upon capital. The 104 principal manufacturing industries of the United States show a corresponding rate of net return upon capital of 11.8 per cent, while the rate of net return for all the manufacturing industries of the United States combined was 12 per cent. Both of these rates are twice as great as the rate of return upon railway capital.

The ratio of capital stock outstanding to total railway capital securities outstanding has been falling both in the United States as a whole and in the Eastern district. The ratio of bonds is increasing.

The figures showed that the railroads, to effect more economical operation, had been constantly increasing the size of locomotives, thus enabling a greater load to be carried for each engine and train crew. Average tractive power per locomotive increased nearly thirty-four per cent between 1903 and 1912. Since 1910 there has been an increase of nearly seven per cent in average tractive power, while the annual average for the second half of the decade (1908-1912) was greater than that of the first half (1903-1907) by fifteen per cent. Increases in the average capacity per freight car between 1903 and 1912 were twenty-eight per cent. Since 1910 there has been an increase of over three and a half per cent, while the annual average for the second half of the decade (1908-1912) was greater than that of the first half (1903-1907) by nearly sixteen per cent.

C. C. McCain, chairman of the Trunk Line Association, took the stand to explain the method the roads used in computing the new freight rates estimated on a five per cent increase. The rules followed for making these rates were authorized as follows:

In computing and publishing all revised class and commodity rates in cents per 100 pounds decimals of tenths to be employed.

In figuring advanced per ton rates, fractions of one cent per ton to be disposed of by dropping 49 hundredths of one cent or less per ton and increasing 50 hundredths or more per ton to one cent.

The minimum advance in the per ton rates to be five cents per ton and one quarter cent for rates in cents per 100 pounds expressed in decimals.

In computing through westbound rates, the New York-Chicago rates will first be advanced five per cent, and other Western points taking a percentage of the New York-Chicago rate will take the established percentage of the new advanced Chicago rate, with the understanding that port differentials heretofore established and recognized will be continued.

In computing other rates not based on a percentage of the New York-Chicago rate, recognized differentials above or below advanced basing rates will be maintained.

Mr. McCain explained:

From New York, Boston, Philadelphia and Baltimore, rates are published by various differential routes, such as rail-and-lake, ocean-and-rail, and canal-and-lake, as the case may be, the rates via those routes being specified amounts under those of the standard all-rail routes. When computing the new rates, the differential relation of these several routes has been maintained as heretofore, the rates of the standard routes having been first advanced five per cent, and those of the differential routes then obtained by deducting therefrom the established differentials. This method operates to produce slight variations from the exact advance of five per cent via such routes.

E. Morris, chairman of the Central Freight Association, followed to explain the method pursued to estimate the advanced rates in his territory. It was shown that exactly the same principles were authorized as explained by Mr. McCain. The only difference was the difference in territory.

R. H. Large, general coal freight agent for the Pennsylvania, was presented to explain the methods followed in computing the advanced rates on coal. The witness asserted that the total or average advance in all the coal rates in Eastern territory as proposed by the roads is not more than four per cent.

At the conclusion of Mr. Large's testimony, hearings were adjourned until December 10th, to permit the preparation of further material and to give the Commission's attorneys an opportunity to examine into what had already been filed.

Upon the resumption of hearings on December 10th, Charles A. Conant, a noted political economist, was put on the stand by the railways to explain that the purchasing value of a dollar had decreased and what effect this had had upon the carriers.

Mr. Conant said:

Taking the receipts for freight alone per ton-mile and expressing them in mills, or tenths of a cent, it appears that the average of ton-mile receipts varied only within narrow limits during the whole of the 16 years from 1896 to 1912. In 1896, the average receipts per ton-mile were 8.06 mills, in 1912 they were 7.43 mills. This represented a decline of 63 hundredths of a mill, or about 7 per cent.

I conclude, therefore, simply as a question of mathematics, and without undertaking to enter into the intricacies of railway accounting or the special demands which have been made upon the railways, that the purchasing power of the moneys

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which are now paid for freight is approximately 37 per cent less in the market for commodities than it was in 1896.

Extending his testimony to the question of the general demand for capital, Mr. Conant concluded:

Such additional capital as the roads have sought by the issue and sale of securities has been obtained on higher terms than in former years, while its purchasing power, in materials and wages, has been much less than in former years. The railways have been in the peculiar position of seeing prices rising all around them, while they have been unable to make advances proportionate to their changed relations to other industries.

If the value of the money received by the railways for the services has so seriously declined in purchasing power as to deprive them of the means of meeting their legitimate charges and obtaining new caiptal at its present rental price, they are not on an equality with other industries. They are receiving a much less proportionate share of the proceeds of the economic output of the country than that which they formerly received and they are less capable of contributing their share to equipping this country for unfettered competition with other countries in the field of production and international commerce.

The Erie Railroad system, through Charles P. Crawford, its controller, presented to the Commission a statistical statement of its own condition. The following is a summary of Mr. Crawford's testimony:

In 1913 the property investment of the Erie Railroad system had increased $88,459,748 since 1903, or 24.26 per cent, while its net operating revenue increased only $1,701,404, or 9.36 per cent and its net operating income decreased $799,205, or 4.76 per cent.

During the same period its gross operating revenue increased $19,133,219, or 39.70 per cent, showing greatly increased service to the public. The Erie system in 1913 fell $799,205 short of receiving any additional return on its great increase in investment, although it rendered a greatly increased amount of transportation service to the public. The business handled by the system has greatly increased since 1903. The number of tons of freight revenue carried one mile has increased from 5,600 millions in 1903 to 6,669 millions in 1910, 7,976 millions in 1913.

During this period the average revenue per ton per mile was 6.13 mills in 1903, 6.15 in 1910 and 5.92 in 1913. The revenue per ton mile has decreased 3.74 per cent since 1910, while the decrease in the average revenue per ton mile since 1903 may have resulted in part from changes in the character of traffic handled and in its average movement, yet it is believed the reduction in the average revenue per ton per mile has resulted in large part from late reductions.

Notwithstanding these reductions in the average revenue per ton per mile, the total operating revenue has increased from $48,000,000 in 1903 to $59,000,000 in 1910 and $67,000,000 in 1913, making an increase of 39.70 per cent for 1913, as compared with 1903, and of 13.96 per cent as compared with 1910.

Under normal conditions, with such a large increase in the business handled and in operating revenue, there should be a substantial decrease in the ratio of operating expenses to operating revenues, but this has not been the case, as operating expenses and taxes have increased at a rate largely in excess of the increase in operating revenues.

John G. Walber, assistant to third vice-president of the Baltimore and Ohio Railroad, explained the advance in the rates of pay to railroad employes as one of the largest items in the increasing expenses which the railroads have had to meet during the past three years.

Mr. Walber was a member of the conference committee of managers, representing his company in the various wage negotiations and arbitration proceedings which have been conducted in connection with increases to organized railroad employes; and the testimony offered by the witness went into the history of the movements for wage advances and the amount of money involved in the settlements, applied to the Baltimore and Ohio and other railroad companies concerned in the application for an increase in freight rates to compensate them.

Testifying on behalf of the roads in the case Mr. Walber stated that as a result of the increase in rates of pay of employes twenty-nine of the thirty-eight companies now asking $48,618,972 more for doing business in 1913 than it would in 1910 had the rates of 1909 continued on the basis of the same service.

In conclusion, Mr. Walber stated that "in addition to the wage increases granted in the calendar year 1910, a small portion of which was effective in the fiscal year ended June 30, 1910, the engineers, firemen, conductors and trainmen have been awarded increases in rates of pay through arbitration proceedings amounting to $10,350,000 a year on the Eastern railroads, and increases in rates of pay have been granted to various other classes of labor amounting to large sums in the aggregate in addition to those granted in 1910."

In order to save time Mr. Patterson did not call E. G. Hoover, statistician for the Pennsylvania, to the stand, but instead the attorney read a statement for that witness relative to the wage increases on the Pennsylvania, offering to produce the witness for cross-examination. The statement follows:

There were on the Pennsylvania system as of

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June 30, 1913, 240,635 employes, and during the year 1913 the various companies of the Pennsylvania System paid to these men in wages the sum of $189,397,069. This sum represented an increase for the 1913 payroll of $18,088,637 over what would have been paid to the same number of employes at the rate of wages prevailing in 1909, showing that during those years there had taken place an increase of more than 10 per cent in the rate of pay.

The Pennsylvania System had granted in November, 1902, an increase of 10 per cent in the wages of all employes receiving less than $200 per month. Again in 1906 the Pennsylvania System awarded a further increase of 10 per cent in the wages of all employes receiving less than $200 per month. Various other increases and adjustments in wages from 1901 up to June 30, 1913 and including the two 10 per cent increases referred to, have added over $45,000,000 to the payrolls of the Pennsylvania System companies by reason of changes in rates of pay and working conditions.

The wages of Pennsylvania Railroad employes for the year ending June 30, 1913, represented an average increase in rates of pay of some 37 per cent over and above the rates prevailing in 1901.

In addition to the foregoing increases, it is estimated that the recent award in the arbitration covering firemen's wages will, based upon the amount of labor performed in 1913, add $500,000 to the payrolls of these companies. In addition to that, a further burden of $1,200,000 is placed upon these companies by reason of the changes in rates of pay and working conditions granted as a result of the award just made in the case of conductors and trainmen.

W. C. Maxwell, representing the Central Freight Committee, was recalled to the stand to offer supplemental evidence relative to thirty-six of the smaller roads in this territory.

The hearings were adjourned on December 10th, to be resumed on some date shortly after the first of the year.

As the hearings progress it becomes apparent that the railroads are presenting a far more convincing case than in 1910. Not only is their financial condition and outlook more critical than two years ago, but they have taken the pains to more thoroughly cover the ground and have left nothing to the imagination. While opposition is apparent in some shipping quarters, many of the leading business men of the country as well as their organizations, are supporting the carriers' contention, for, in the rate increases asked, they see at least a measure of relief from present unsatisfactory industrial conditions.

In the January issue of the RAILWAY WORLD will be presented a more complete statement of the important facts which the hearings have so far developed, together with editorial extracts from the press of the country showing how uniformly the proposed rate increases are being supported by leading newspapers and periodicals.

An interesting sidelight on the case is found in the addresses made on the evening of December 13th, at a dinner of the Lotus Club in New York, by Howard Elliott, chairman of the New Haven board, and Charles A. Prouty, of the Interstate Commerce Commission. Referring to the railway situation, Mr. Elliott said:

> If we permit our politicians to keep on regulating the railroads and other forms of public service corporations, they will be regulated, but they also will be dead. Some day, possibly not before the millennium, the people will reach the conclusion that there are only two ways of treating railroad business. One is to treat it as a function of government, and the other is to treat it as commerce, or business subject to reasonable regulation. There is no middle ground.
>
> It is impossible in the long run to persuade private capital to invest in railroads, if politicians and governmental bureaucrats are to exercise all the functions of ownership and management. It may be in the power of the government to destroy a part or the whole of the private capital which has heretofore been invested in railroads, on the theory that the investor must have some voice in managing his business, but it is not in the power of the government to make individuals to repeat any such foolish experiment, and they will not do it.
>
> We all remember how nearly the silver question plunged the country into real distress. The same unthinking course toward business may produce a like result. Complaint was made at one time, that business was too much engaged in politics, but now, it can be justly said that politics is engaged entirely too much in business, and that such

J. G. WALBER,

who testified as to the effect of wage advances upon operating expenses.

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LOUIS D. BRANDEIS,

the Boston attorney, who has been retained by the Interstate Commerce Commission as special representative in the advance rate case.

policy tends to take away the self-reliance and initiative of those who have done such good work in making the United States what it is.

Mr. Prouty's address which was practically a direct answer to that of Mr. Elliott's, contained the following reported significant statement:

When it is no longer possible for a railroad to spend its money save for railroad purposes, when railroads cannot buy securities of other railroads, when they cannot issue securities save with federal supervision, then, gentlemen, you can safely say that the government will permit increases in railroad rates.

Commissioner Prouty's statement combined with the known attitude of Mr. Brandeis on interlocking directorates, indicates at least one of the lines of argument which will be used by the attorneys opposing the rate advances. Now that his efficiency bubble has been pricked, Mr. Brandeis is likely to take the stand that the financial results of a five per cent increase in freight rates could be more than off-set by the saving in the purchases of supplies, fuel, equipment, etc., were they procured from independent concerns instead of from companies represented by interlocking directors. It is believed, however, that the railroads will be better prepared this time to handle Mr. Brandeis and that his arguments along these lines, particularly with regard to the cost of materials, will be met in a convincing manner by the carriers.

Commissioner Prouty's remarks gave rise to a storm of criticism in the public press. Many of the newspapers who are found uniformly supporting the Commission, deplored the fact that one of its members should apparently express so strong an opinion regarding a case not yet decided. On account of this criticism, Mr. Prouty has taken occasion to publicly deny that anything in his remarks at the Lotus Club dinner could be taken as forecasting the Commission's action regarding the application of the Eastern roads for a five per cent increase in rates. His full statement is as follows:

It must be plain that no matter what I said on Saturday night, I did not speak for the Commission. I have not studied the present request for increase of rates at all fully, and do not know how I should vote on the question if I were actively a member of the Commission. How the Commission will vote I certainly do not know, and I don't believe any of the Commissioners know. They will have hearings and investigations for eight months before they can decide.

What I did say at the Lotus Club dinner was that the railroads would have a difficult time in securing a substantial increase of freight rates, in my opinion, until they were able to show that they would use the money obtained for proper purposes. They cannot show this, I fear, until there is Government supervision of railroad securities.

My argument on Saturday night was an advocacy, in a general way, of such Government supervision. I have advocated it for fifteen years, and did not say anything new. Briefly, my position, which is absolutely unofficial, is that the railroads will always have a very difficult time getting extra money until there is positive assurance that the extra money will be used rightly, and the only way we can get the assurance is through federal laws regulating railroad securities and investments with Government supervision of them.

This has no direct bearing on the one immediate request of the railroad. I was thinking particularly of the New Haven Railroad's past history when I mentioned Government supervision. I meant to be understood as meaning that the Government wanted some assurance that the future policy of the New Haven would be different from its past, before we granted the New Haven more money. In our recent investigation of the New Haven's affairs we found records of grossly improper practices in the management of the road. We found inflated capitalization, money used for improper purposes, investments made in trolley lines, the Boston and Maine, and elsewhere that should never have been made. In fact, the powers that were did everything with the New Haven except run a railroad.

Now, what I want to see is an absolute guarantee that these things won't happen again. They are called "by-gones." What I want is assurance that they are by-gones, and won't be repeated. To my mind, Government supervision of securities, which I hope to see enacted into law at the pres-

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ent session of Congress, is the only means of obtaining this guarantee. The railroads may be able to get an increase in rates under present conditions, but, in my opinion, they will have a hard time doing so. That's all I said about the present case before the Interstate Commerce Commission.

But I may say that if the railroads can show they need more money, they will get it. I can speak for the Interstate Commerce Commission sufficiently to say that the Commission has no desire to sacrifice the railroads. Let the railroads once convince the Commission that their request is just, and it will be granted, Government supervision or no Government supervision. The only point is that it will be harder for the railroads to win their case without Government supervision of securities, than with it. It is possible, but difficult.

NEW FREIGHT RATE PRIMER

Most of our readers will remember that at the time the railroads first endeavored to have the Interstate Commerce Commission favorably consider an increase in their freight rates, the New York Central Lines prepared and published a freight rate primer which set forth in a simple manner the effect of a 10 per cent increase upon various commodities between important shipping points. Another primer, of a somewhat similar character, has now made its appearance although there is nothing on its face to show that it emanates from a railway source. After pointing out that American railroads carry a ton of freight three miles for the price of a two-cent postage stamp, or in other words, at the average rate of approximately three quarters of a cent per ton mile, it proceeds to discuss in the following manner, some of the tendencies which have resulted in present unsatisfactory conditions:

It is a common practice among business men to increase the wages of experienced and faithful employes. Applied to the railroads this is all one-sided, for the reason that they have in the past and are now called upon to pay their experienced and faithful employes increased compensation, but they have stood from the public a stationary wage for many years and, in many instances, a cut. Despite the increased efficiency and added value in service provided by the nation-wide extension and expansion of our railroad systems, freight rates in the whole country have steadily dropped from one and one fourth cents per ton mile in 1880, to three fourths of a cent for several years past.

You may say, to allow the railroads to advance their freight rates will increase the present high cost of living. Will it? What relation, think you, do freight rates bear to the selling price of commodities?

The railroads now get two and two-fifths cents for carrying a pair of shoes from Boston to Chicago. If the rates were increased five per cent the freight would still be less than three cents per pair between the points mentioned. Should this affect the average selling price—$4.00 a pair?

At the present time in bituminous coal from the mines in West Virginia to the Atlantic seaboard, a two-cent stamp will pay the freight on one ton of coal over six miles.

Taking as an example, the movement of certain commodities between such points as New York and Chicago, Boston and Chicago, etc., it shows that the increased freight on one pound of sugar (1,000 miles) would be fifteen thousandths of a cent ($.00015); on a barrel of flour (1,380 miles), two and three quarters cents ($.0275); on one pound of butter (1,000 miles), thirty-eight thousandths of a cent ($.00038); on one pound of coffee (1,000 miles), sixteen thousandths of a cent ($.00016); on one bushel of potatoes (1,088 miles), one cent ($.01); on one dozen eggs (1,000 miles), fifty-seven thousandths of a cent ($.00057); on one pound of dressed beef (1,000 miles), twenty-five thousandths of a cent ($.00025).

It is pointed out that these increases while insignificant to the producer or consumer, are yet vital to the railroads if they are to be able to meet increasing expenses. Comparing the wonderful betterment in service which has occurred in the past half century, with the constant cheapening of transportation charges, the premier has to say:

This increase in service and decrease in its remuneration have resulted in a condition in which an army of more than 1,500,000 men is employed in the transportation of commodities at an average cost more than 40 per cent lower than is shown by any other country, and is paid an average wage more than 50 per cent higher than is paid in any other country where railroads exist.

Part of this continuous decrease in freight rates has been due to competition and part to operating economies. Rates have been brought down to a point where, in many instances, the carriage of certain kinds of freight is no longer profitable to the railroads. * * * A general readjustment of rates that will be more equitable to the carriers is a present necessity. * * * To be efficient, the railroads must be fairly paid. If the wages be insufficient a lack of efficiency results. This is equally true of all business enterprises.

The railroads now carry a piano 1,000 miles for $6. It costs the average householder $5 to get one moved across the street or around the block. More of these illuminating rate illustrations follow. The distances used in the illustrations are generally for 1,000 miles, although the average ton-mile haul, or journey of each ton of freight moved, is approximately 254 miles.

Railroads now carry one hammer a thousand miles for one and two fifths cents, or 54 hammers the same distances for the price of one—65 cents. They carry one pair of shoes 1,025 miles for two and two fifths cents, or 166 pairs of shoes the same distance for the price of one pair—$4.

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One pair of socks is carried 1,000 miles for one seventeenth of a cent, or 425 pairs the same distance for the price of one pair—25 cents.

A suit of clothes is carried 1,000 miles for six and four fifths cents, or 220 suits the same distance for the price of one—$15. One negligee shirt is carried 1,000 miles for nine tenths of a cent, or 111 shirts the same distance for the price of one—$1. A suit of underwear is carried 1,000 miles for one cent, or 100 suits the same distance for the price of one—$1. A set of harness is carried 1,000 miles for forty-three and one-half cents, or 80 sets the same distance for the price of one set—$35. A derby hat is carried 1,000 miles for two cents, or 100 hats the same distance for the price of one—$2. An overcoat is carried 1,000 miles for six cents, or 300 overcoats the same distance for the price of one —$18. A coffee pot is carried 1,000 miles for three fourths of a cent, or 40 pots are carried the same distance for the price of one—30 cents. A typewriter machine is carried 1,000 miles for forty-five cents, or 222 machines the same distance for the price of one—$100. One pound of ham is carried 1,000 miles for one third of a cent, or 54 pounds the same distance for the price of one pound—18 cents. A cigar is carried 1,000 miles for one forty second of a cent, or 210 cigars are carried the same distance for the price of a nickel smoke.

PUBLIC STATEMENTS BY PROMINENT OFFICIALS

In the consideration of public statements recently made by prominent railway officials, it is difficult to escape the conclusion that a crisis is rapidly approaching in railway affairs. For some time past, it has been apparent that unless financial relief of a substantial character is procured, the carriers will find themselves unable to satisfactorily meet the demands of commerce.

While the tonnage has proved entirely adequate and in the main registered a normal and satisfactory growth, the economies which have been injected into its movement, including cars of larger capacity, heavier train loads, more powerful engines, reduction of grades and other operating refinements, and which have reduced the unit cost of carriage to a minimum unparalleled in the world's transportation developments, have proved inadequate to stem the tide of increasing operating expenses over which the carriers have apparently only a limited control. The costly mandates of legislative and regulative bodies, the insatiable demands of labor, increased taxes, higher cost of supplies and a constant decrease in transportation charges as the result of decisions by national and state regulative bodies, have left many railroads without adequate funds to conduct an efficient and progressive plant.

H. U. Mudge, president of the Rock Island Lines, in an address delivered on November 19th, at the 19th annual dinner of the Commercial Club of Kansas City, in discussing the railway situation, spoke in part as follows:

Everything purchased by the railways has enormously increased in price, while the price of the only commodity which they have for sale has not increased, but has very greatly decreased. Passenger fares in practically all of the Western states have been reduced thirty-three and one-third per cent during the past five years, and similar decreases have also been made in the freight rates. It is no more possible to reduce the purchasing power of the dollar in all commodities except one, and leave that stationary, or increase it in that single commodity, than it is to change the laws of gravity.

For some time past, practically all of the new money secured by the railways has been borrowed at high rates of interest and bonds issued therefor, it having become impossible to sell further shares of stock to the public at any price. We are, it is true, a nation of borrowers. The tendency is to issue bonds on which to secure funds for almost every kind of improvement, but it must be perfectly clear that this plan cannot go on indefinitely.

Whether it be a farmer, a manufacturer or a transportation company, if every dollar put into the property for improvements and betterments is provided only through the increase of the funded debt, there will, sooner or later, come an adverse year when the institution will find itself unable to meet its fixed charges, but before that time, it will find itself unable to borrow further funds, except at excessive rates of interest, if at all.

Some of the railways have already reached this point and are unable to secure funds on any basis, and others are unable to secure sufficient to take care of their needed improvements. It is as necessary for the transportation systems to put back into their properties a fair portion of their earnings as it is for the farmer or the manufacturer to do so, and this is the only possible means by which a proper transportation system can be built up and kept by private capital.

This country has the best transportation system, at the lowest rates, and operated by the highest paid employes, of any system in the world. It would still have this if a slight increase was made in the rates of transportation.

The railway stockholders of this country are made up of hundreds of thousands of all classes of our citizens. On the Pennsylvania Railroad more than one half of the stockholders are women, but I am making no plea for the stockholders—they can probably take care of themselves, and it is because I fear that they will take care of themselves and leave the railways to shift for themselves, that I am disturbed regarding the railway situation.

If private capital continues to be withheld from railway investments, as it is now doing, government ownership will be the only alternative, and while this will probably be the ultimate solution of the problem, I do not believe the country is ready for it yet. Pending the time when the people are ready for that, the splendid railway system which they now have should be kept intact and improved in accordance with the necessities of commerce, in order that when it is taken over

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H. U. MUDGE,
President of the Rock Island Lines.

by the government, it will not have deteriorated so that the government will have to tax the people for its rehabilitation.

It may also be set down as a certainty that if there is no change in the conditions when the government does take over the railways, one of three things must happen—either the rates will be raised, wages reduced or the deficit will have to be made up by taxation.

Fortunately, our people have the experience of other countries to guide them. There is practically no government owned and operated railway in the world that has not increased its freight or passenger rates during the past five years and there is, I believe, more dissatisfaction among the shippers on government railways than on private railways in the same countries, or, for that matter, in any country.

The Eastern railways have asked permission to increase their freight rates five per cent, and the matter is now before the Interstate Commerce Commission. This, of itself, would not recoup them for the increases in wages that have been made during the last five years, but it would give renewed confidence; would enable them to renew purchases and improvements, and thus start manufacturing on a better scale.

There seems to be no great opposition on the part of the shippers to this increase, and it is believed by those who have the situation in hand that such a showing will be made as to justify the Interstate Commerce Commission in granting the increase. The railway "Outlook," therefore, seems encouraging.

At the bi-monthly meeting and dinner of the Pittsburgh Traffic Club, held on December 8th, Mr. Ivy L. Lee, executive assistant to the president of the Pennsylvania Railroad, also discussed some of the problems which are confronting present day railway management. An outline of his remarks is herewith appended:

A Pennsylvania Railroad officer coming to Pittsburgh feels that he is among friends. Here throbs the heart of the Pennsylvania Railroad. We operate 1,000 locomotives on the Pittsburgh division alone. Last year we spent in the Pittsburgh district $35,000,000 for wages and materials.

The railroads are confronted by menacing difficulties; wages are constantly going up; the taxes of the railroads east of the Mississippi and north of the Ohio have increased 111 per cent since 1903. Legislation is continually increasing operating expenses. Such legislation may be desirable, but it is unquestionably expensive. The railroads must find, if they can, the money with which to pay for it.

Faced with such burdens, the railroads nevertheless find extraordinary difficulties in meeting the situation by reason of numerous and anomalous factors, such as:

First: The fact that different tribunals arbitrate wage questions from those which settle what the railroads shall charge;

Second: The fact that states may impose expenses, and yet by reason of the inter-relationship between state and interstate rates, the National Government, in effect if not in act, prevents the increase of state rates to meet the increased expenses.

Third: We are constantly urged to consider business interests and to adjust our dealings to the commercial needs of the people, and yet we are often compelled by law to do uncommercial things. If a lumber dealer places a contract in Pittsburgh, relying upon a rate quoted to him by a Pittsburgh rate clerk, and it is later found that the rate was, in the utmost good faith, quoted inaccurately, the legal rate must nevertheless be collected even if it should mean the bankruptcy of the lumber dealer." This situation has been met in the Pennsylvania Public Utilities law, but is

IVY L. LEE,
Executive Assistant, Pennsylvania Railroad.

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still controlling with reference to interstate shipments.

Fourth: We are compelled by the Sherman Act to compete, and yet under the Hepburn law in effect forbidden to compete with other railroads. The natural result of competition is the survival of the strong, and yet if such actual competition results in the crippling of the weak, the result is not considered desirable.

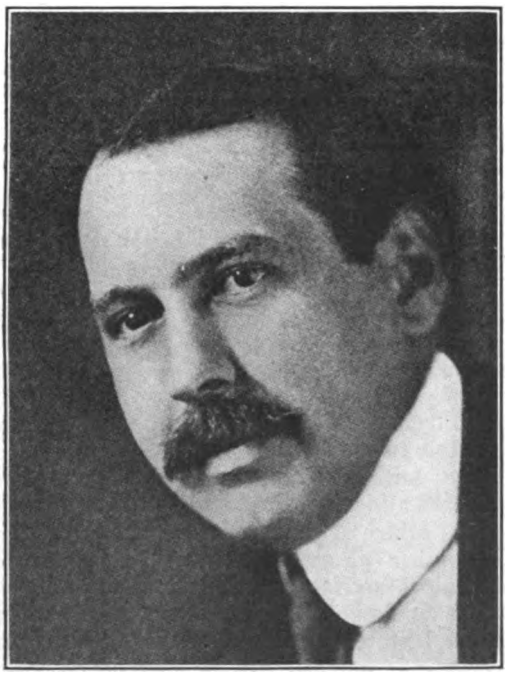
Fifth: The railroads are often between two fires, involving local interests. The city of Pittsburgh needs, and should very properly demand constantly improving terminal facilities, yet there is a certain demand here for switching between different railroads at merely nominal rates. It is sometimes forgotten that if one railroad's terminals are not to be protected, that railroad at once loses its greatest incentive to improve those terminals.

These and many other difficulties have brought the railroads to their present condition. Since 1910 the railroads in Official Classification territory, and which are now seeking to increase freight rates five per cent, have expended $660,000,000 upon their properties, and earnings during these three years have increased $186,000,000. Their expenses have increased $203,000,000, thus the railroads in this territory are to-day worse off in annual net earnings by $17,000,000 than they were for the year ending June 30, 1910, before the $660,000,000 new money had been invested.

In the Central Freight Association territory, with increased gross earnings of $78,000,000, these companies, in the last three years, have suffered a loss of $12,000,000 in operating income. The figures just at hand for July, August and September, 1913, show a loss in net earnings of nearly $7,000,000 for those three months as compared with the same quarter of 1912, a loss of nearly 20 per cent.

The result is that the railroads, as the arteries of the country, as the arteries of trade, are coming into a state of arterio-sclerosis, or hardening of the arteries, as Mr. Daniel Willard, president of the Baltimore and Ohio Rialroad, expressed the situation in presenting the case of the railroads recently to the Interstate Commerce Commission.

"In view of all this, those responsible for the management of these properties would not be justified in continuing large expenditures of new capital for additional facilities and equipment, even if such capital were available at reasonable rates of interest."



J. M. FITZGERALD,
President of the Western Maryland.

At Rochester, on December 8th, William C. Brown, speaking at a dinner tendered to the president and directors of the Chamber of Commerce of the United States, had the following in part to say:

I have unbounded faith in the future of this country, but I believe we are approaching a crisis when the influence of every thoughtful, conservative, patriotic citizen must be exerted to the utmost to stem the tide of socialism which has gained ominous strength during the past decade.

I may be wrong, but as a citizen with forty-four years of railroad experience behind me, and whatever remains of life as a business man before me I cannot but believe that government ownership of the railroads of the nation would be a dangerous mistake.

I think every conservative citizen shrinks from the experiment, but I believe the decision of the rate case now under consideration before the Interstate Commerce Commission will either substantially check or prove to be a long step in this dangerous direction.

If the moderate advance asked for is denied, in my opinion it will be impossible for the railroads to secure the funds with which to make improvements, without which expansion of the commerce of the nation must gradually come to a halt.

In this event, if it should come, the demand that the government provide funds necessary to supply adequate transportation facilities will be irresistible, and government ownership and operation, with whatever it involves for weal or woe to the nation, will be the inevitable result.

J. M. Fitzgerald, president of the Western Maryland Railway, delivered an address at Toledo on November 26th, before the Traffic Club of that City, on "Railroads and the High Cost of Living." The speaker called attention to the vast amount of money invested in railroad property and the correspondingly large amount paid in wages. In this connection he said:

Let us approach this subject, realizing that our railways employ more than seventeen hundred thousand persons, with an annual payroll of nearly thirteen hundred million dollars; that a fair value of our railway plant, equipment and property is probably eighteen billion dollars; that this

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amount represents a large portion of the reserve funds of savings and insurance institutions, which administer the savings of millions of men, women and children.

As to the importance of the railroads in the development of the country Mr. Fitzgerald said: "The service most essential to the furtherance of industry and commerce is transportation; the instrumentality most important to that service in the United States is our system of railways. They supply the means by which products reach their markets and consumers reach their source of supply. In other words, they make possible the interchange of commodities. When the exchange of commodities fails, industry will also fail."

With respect to the need of co-operation in order to secure the best results on railroads the speaker declared: "The interests of the railways, their security holders, their employes, the shippers, the passengers and the public are identical. By no process of reasoning can you separate them. Therefore, we should all be concerned regarding the conditions now confronting the railways and which difficulties may be met in one of three ways."

He called attention to the fact that a reduction in wages could not be considered at this time and that any reduction in other items which would impair transportation service would not be tolerated by the public, and that the only other way is by an increase in rates. The speaker asserted that it is universally known and admitted that the railroads can not continue to meet the demands of federal and state legislation and constantly increasing wages without an increase in rates.

Mr. Fitzgerald, in a striking way, called the attention of his hearers to the following facts:

Railroad rates of compensation are under the control of the federal and state commissions. Enactment of federal and state legislation, requiring capital expenditures on the part of the railways continues. Demands for increased wages—presented by employes with increased regularity, are refused by the railways and allowed by arbitration, which is now conducted under the Newlands law—a federal enactment.

In closing Mr. Fitzgerald said:

There is nothing mysterious about the financial and physical operation of railway properties and I believe we should be frank with our stockholders, our employes, the public and the government. Take them into our confidence and make them partners in the enterprise so important to their future welfare. We will enjoy an ideal relationship with the people when they cease referring to the railroads as the "Harriman lines," the "Vanderbilt lines," the "Hill lines," or the "Rockefeller lines" and refer to them as "Our Railroads."

There is a great difference between government ownership and public ownership. I believe in public ownership and I believe in public regulation—a regulation which will protect the people from improper discrimination and insure them efficient and proper service.

Howard Elliott, on November 25th, addressed the New England Dry Goods Association with reference to the New England railway situation, particularly in its application to Boston and Maine Railroad affairs. He spoke in part as follows:

All the Boston and Maine has to sell the public is transportation at prices fixed by either state railroad commissions or the federal commission.

Those prices are fixed entirely too low for present-day conditions. But the prices are fixed, and are entirely beyond the control of the management. Some complaining stockholders say we should at once reduce all wages 25 per cent. That is a very simple statement and easy to make, but we don't control the wages. These are fixed first by the great law of supply and demand and also by the labor organizations, and now through federal operation under the Newlands Act.

Under this act employes got a raise in wages of substantially seven per cent recently, which means $350,000 a year for the Boston and Maine. About two years ago, before the Newlands bill was passed, the wages of firemen and engineers were raised.

The Boston and Maine is paying about $4,000,000 more in wages than it did six or seven years ago. I don't say that the employes shouldn't have that money, but the other conditions of the road haven't been worked out accordingly. You can't go on indefinitely keeping down the unit price and increasing expenses and remain solvent.

Here in New England there is a virile population, a large accumulation of wealth and great intelligence—a country rich in many ways, whose people have shown a great deal of ability in manufacturing and in educational work.

They have the power to own as good a railroad as they want. They've got to do something, because the owners and managers of this road are helpless at present. And all that is needed is a little help in raising the unit price.

A trenchant summary of the remarkable growth of the export trade of the United States with particular reference to exports of iron and steel products was the feature of an address delivered on the evening of December 3d, at the annual meeting of the Illinois Manufacturers' Association at Chicago, by James A. Farrell, president of the United States Steel Corporation. Mr. Farrell said in part:

The fiscal year ending June 30, 1876, showed an excess of exports over imports amounting to $79,-

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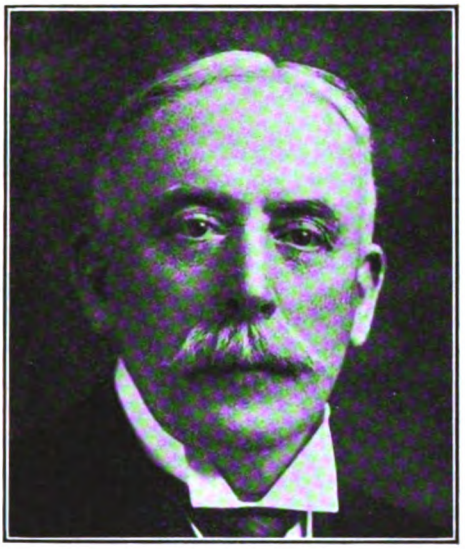

JAMES A. FARRELL,
President of the United States Steel Corporation.

643,481. Since that time up to the present, with the exception of three years, 1888, 1889 and 1893, our exports have shown a substantial excess over our imports; the highest being in 1908, when the excess amounted to $666,431,554.

The value of exports of merchandise from the United States to all foreign countries for the twelve months ending October 31, 1913, was $2,533,570,882, showing an excess of exports over imports to the amount of $766,192,509. The corresponding figures for the twelve months ending October 31, 1912, were $2,297,317,891, showing an excess of exports over imports amounting to $519,598,954.

In the earlier periods, our exports consisted largely of foodstuffs and crude products, but during later years, our importance as a manufacturing nation has been increasing to such an extent that, out of total domestic exports during the last fiscal year amounting to $2,428,000,000, our exports of domestic manufactures amounted to $1,187,000,000, or almost 49 per cent of the total.

England has a foreign trade per capita of $125, Germany $70 and the United States $40. To European countries, export trade is a matter of vital importance, and in view of the ever-changing economic conditions which are taking place in our country, it is evident that a large export trade is, of necessity, bound up with its future prosperity. The United States must take her place even to a larger extent than heretofore among the world's nations as a factor in international trade.

While it has been generally conceded that export business is desirable and necessary to supplement domestic trade, some economists have insisted that such business should not be accepted at less than the domestic prices. No explanation, however, is offered as to the method of obtaining export business except at prices competitive with those of foreign manufacturers. It is unnecessary to argue with any one who has a knowledge of the world's export trade, that American materials cannot be sold in foreign markets at other than competitive prices for like quality.

At a recent hearing before the National House of Representatives' Committee on Rivers and Harbors on the bill appropriating $8,000,000 for Mississippi River protection, B. F. Bush, president of the Missouri Pacific-Iron Mountain Railroad system which has 3,700 miles of road in the delta district, strongly urged the passage of the bill. He said:

There is no question as to the right and duty of the National Government to make the necessary appropriation for carrying off and regulating the waters of the lower Mississippi. Louisiana and Arkansas have already expended millions in trying to control the Father of Waters and the Father of Floods. But the burden of this expense should not be on their shoulders alone. It is also the duty of the National Government by reason of the fact that the waters of 31 states, comprising 41 per cent of the area of the United States are drained off and discharged through the lower Mississippi. It is the plain duty of the National Government to make provision for its safe conduct and prevent the annual loss of life and property which falls heavily on the two states exposed to the river's ravages. In 1912, the property loss from floods amounted to $40,000,000 and in 1913 the loss was $10,000,000.

The National Government has reclaimed 7,241,000 acres of arid land in the West at a cost of $90,000,000. Last year these lands produced $181,617,000 worth of crops. In the delta district, on the lower Mississippi, there are 20,000,000 acres of the richest and most fertile land in the country subject to these floods. In 1910, there were only 3,500,000 acres of this under cultivation. Fifteen

BENJAMIN F. BUSH,
President of the Missouri Pacific.

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million acres of the richest land in the country could be made available if the waters of the Mississippi could be controlled. Of the land area of Louisiana, less than 36 per cent is in farms and of this land in farms only 5,163,000 acres, or 49.5 per cent, are under cultivation. In Arkansas there are 17,416,000 acres of land in farms of which only 9,340,000, or 54 per cent, are under cultivation. Not all, but the greater part of these unfarmed lands could be available for cultivation if protection could be assured against recurrent floods. In due time this addition to the tillable area of the country could easily produce annually $700,000,000 added wealth to the country.

EXTENSION OF PARCEL POST AUTHORIZED

The Interstate Commerce Commission has approved Postmaster General Burleson's plan to extend the parcel post service. This includes increasing from twenty to fifty pounds the weight limits of parcel post packages in the first and second zones, reducing the rates in the third, fourth, fifth and sixth zones and admitting books to the privileges of the parcel post.

The maximum weight of parcels to all zones beyond the second was increased from eleven to twenty pounds. The approved changes in rates, in effect January 1, 1914, follow:

To reduce the rates for the third zone from 7 cents for the first pound and 5 cents for each additional pound to 6 cents for the first pound and 4 cents for each additional pound.

To reduce the rates for the fourth zone from 8 cents for the first pound and 6 cents for each additional pound to 9 cents for the first pound and 4 cents for each additional pound.

To reduce the rates for the fifth zone from 9 cents for the first pound and 7 cents for each additional pound to 8 cents for the first pound and 6 cents for each additional pound.

To reduce the rates for the sixth zone from 10 cents for the first pound and 9 cents for each additional pound to 9 cents for the first pound and 8 cents for each additional pound.

Serious objections to the proposed change in the rates on books and catalogues were made chiefly by mailers of heavy catalogues, but the Commission says it feels that the changes are in the interest of the public generally.

Consent was also given by the Commission to the admission of shipments of gold, gold bullion, and gold dust in Alaska and to and from Alaska in packages weighing not more than eleven pounds. The rate of postage fixed is 2 cents an ounce or fraction thereof for all distances.

In rendering its decision the Commission says:

> It seems obvious that the service to the public will be promoted by these changes, provided the revenue from the service is not less than the cost thereof. Your experience and statistics seem to show clearly that the revenue will not be less than the cost of the service.

The result of the new order, it is believed, will be to double the burden upon the Postoffice Department, while the railroads will be compelled to handle an estimated increase of from 60 to 75 per cent in the bulk of parcel post without current compensation of any kind.

It is not expected that the carriers will submit without a protest to this added burden thrust upon them by the Postoffice Department. Should any business institution dare to employ similar methods of highway robbery, it would not be long before some law would be found suitable to cover the offense. It seems incredible that public servants can sanction methods which are little short of dishonest for it is difficult to characterize developments with regard to the parcel post in any other way. Furthermore, to state that the Postoffice Department or Congress will eventually provide a remedy is not dealing fairly with the situation and it is useless to deny that whatever provision may be made for the future, the Postoffice Department stands convicted of arbitrarily forcing the railroads to perform a service for which no suitable compensation has been provided.

It is of course expected that the railroads will again urgently appeal through the Postmaster General to Congress for the earliest consideration possible of a new and more equitable basis of compensation, but the pity of it is that any public official would deliberately lend himself to a plan which deprives a vast industry and through it, thousands of American citizens, of an income rightfully theirs for services performed. A strong plea will probably be made for an annual instead of a quadrennial weighing of the mails as only by such system can the carriers be properly compensated for the heavy increases which occur from year to year.

As to the effect of the new order upon the express companies, it is too early to venture an opinion. In official quarters, the increase in weight from twenty to fifty pounds for the first and second zones is expected to

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bring a large amount of new business to the postoffice and is thought may develop a large volume of the so-called local delivery mercantile business now handled by the express companies. On the other hand, the amount of new business thus brought out may fall far short of expectations at Washington for the rates now obtained in these zones have not been reduced, and as they stand, the margin of difference between them and those of the express rates, favors the latter. Considering the extra service the express companies give, together with the receipt and automatic insurance features, the preference of shippers may continue to rest with the express companies or may be rapidly regained after a better understanding is developed regarding the superior advantages offered by such companies.

A comparison of the new parcel post rates with express rates reveals the fact that as the distance increases the margin of difference between the two sets of rates decreases, while in the fifth and sixth zones express rates are actually lower than parcel post rates. In the third zone, 150-300 miles, a 20-pound parcel would cost by post 44 cents to any point within the zone limit while, by express, the same parcel would carry a charge of 56 cents. In the fourth zone the same parcel could be sent anywhere within the 300-600 mile area for 83 cents by post and 86 cents by express. In the fifth zone, 600-1,000 miles, this package would cost by post $1.23 and by express, $1.05. In the sixth zone, 1,000-1,400 miles, the charge by post for 20 pounds is $1.60, while the express rate would be $1.30.

That the railroad companies will suffer a severe loss under the increased limitations of the parcel post seems to have been recognized by the Postmaster General, who stated that he will request Congress to give the matter of granting extra compensation to the railroads its early attention, adding that his Department is busily engaged in preparing data on which Congress could erect a suitable basis for such payment.

GOVERNMENT OWNED POSTAL CARS

With reference to statements in the press that the Postoffice Committee of the House of Representatives was considering a question that the Government own railway postoffice cars instead of paying "rental" to the railroads for their use, Ralph Peters, president of the Long Island Railroad Company and chairman of the Committee on Railway Mail Pay, representing the railroads of the country, makes the following statement:

The Government pays the railroads $4,882,000 as annual "rental" for 1,353 cars, or about $3,400 per car. The steel postal car, with which all railroads must be equipped by 1915, costs about $12,000.

Postal car pay, which is about 10 per cent of the total amount paid the railroads for transporting the mails is a supplementary rate of pay to make up for the fact that postal cars 60 feet or 70 feet in length do not carry sufficient mail to reimburse the railroad company merely for the weight of mail carried. About 75 per cent of the space in these postal cars is occupied by pigeon-hole cases and sorting racks for the separation of mail en route.

Postal cars do not carry all mail over the railroads, for the railways also supply apartments in combination baggage cars. The Government, however, pays absolutely nothing for the distributing space used in such compartments unless they are of forty feet or more in length. The weight of mail carried in such compartments is very small, and therefore the major service performed by the railroads is in carrying distributing space. The aggregate space now carried in this manner in 4,029 such cars amounts to 92,866 linear feet, equal to the length of 1,548 full 60-foot postal cars. Yet for this distributing space in compartment cars, the Government makes no payment, except for the small amount of dead weght of mail carried in it.

The payment for postoffice cars, including the pay for weight carried, is about 19 cents for each mile a 60-foot car runs, whereas all other service on passenger trains pays an average of 26 cents for each mile a car is operated. If the supplementary pay for the full postal cars were eliminated, the railroads would only receive about 17 cents per mile for carrying the weight of mail as compared with 26 cents from other passenger service.

The cost of maintaining and operating a moving postoffice, with its light, heat, fixtures, carrying the necessary clerks and assuming all risks attendant thereto, constitute an annual sum fairly to be compared with the original cost of a car. If the cars were to be used merely for storage on side tracks, the rental might be reduced, but the payment is in fact for maintaining and hauling these cars an average of one hundred thousand miles per year.

I have no comment to make upon the suggestion that the Government should own its own railway postoffice cars, but such a plan cannot be favored fairly upon any plea that the railroads are now overpaid for this portion of the mail service. In fact the railroad officers of the United States feel that the companies are to-day unpaid by at least $15,000,000 for their service in carrying the mails.

In further consideration of the subject, Mr. Peters called attention to a letter written by the Postmaster General to Representative John W. Weeks on March 2, 1910, in

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response to an inquiry made in regard to the cost of maintaining and operating railway postoffice cars, which we quote in full as follows:

My Dear Sir: In response to your inquiry made of the Second Assistant Postmaster General in regard to the cost of maintaining and opearting railway postoffice cars in its relation to the compensation received by railroad companies for the same and your reference to the speech delivered by Senator Vilas on the subject in the United States Senate, February 13, 1895, I have the honor to advise you as follows:

The department has not at this time sufficient information upon this point to give from its own records a reliable estimate. As you are aware, we have recently asked railroad companies to submit answers to inquiries with reference to the cost of operating the mail service, and it is believed that when these shall have been received we will be in a position to furnish such information. Inasmuch, however, as it may be if importance to you to have estimates made from time to time by others and such incomplete information as we have at present, I submit the following:

The cost of operating a railway postoffice car has been variously estimated (but not officially by the Department) as from 15 to 30 cents a car-mile. The average run per day of such a car is about 300 miles. Estimating the cost at 18 cents a car-mile, the total cost of operating such car for one year would be $19,710.

The specific items which constitute this total cost are not definitely known to the Department. However, as to the cost of lighting, cleaning, repairs, etc., the General Suprintendent of Railway Mail Service furnished the following estimates before the commission to investigate the postal service in 1899, viz.: Lighting, $276; heating, $365; cleaning, water, ice, oil, etc., $365; repairs, $350; proportion of original cost of car (estimating the life of a car at 15 years and the original cost at $6,000), $400; total, $1,756. Recent inquiry gives the following as the approximate cost of maintaining a car at the present time: Lighting (electric), $444; heating, $150; cleaning, $360; repairs, $300; oil and brasses, $120; interest on cost of car (at $7,500), $300 annual deterioration (estimating the life of a car at 20 years), $375; total, $2,049. These figures give the cost of a car built according to the Department's standard specifications. The cost of modern steel cars being built by some of the railroad companies is from $14,000 to $15,000.

The compensation received by a railroad company for operating a car and carrying the mails in it would be approximately as follows:

The pay for a 60-foot car at $40 a track mile per annum for a track mileage of 150 miles would be $6,000. The average load of a 60-foot car, according to statistics obtained recently, is 2.83 tons. The rate per ton of an average daily weight of 50,000 pounds carried over the route is $25.06. At this rate the company would receive $10,637.97 per annum for the average load of mail hauled in the car. This sum added to the specific rate for the railway postoffice car ($6,000) makes the total pay for the car and its average load $16,637.97 per annum.

Senator Vilas's argument was based upon the theory that the rates fixed for railroad transportation alone, based on the weights of the mails carried, are adequate compensation for all services rendered, including the operation of railway postoffice cars, and that therefore the railroad companies would be required to operate postal cars owned by the Postoffice Department for the compensation allowed by law for the weight of mails alone, including apartment-car space and facilities. Such theory is not justified by the facts, as will appear from the following:

A careful perusal of the debates in both Houses of Congress which led to the enactment of the present law fixing the rate of pay for railroad transportation of the mails and for railway postoffice cars clearly indicates that the additional compensation for railway postoffice cars was intended to cover the additional expense imposed upon the railroad companies for building, maintaining and hauling such cars. The companies at that time insisted that these cars, which were practically traveling postoffices, did not carry a remunerative load, and that therefore the amount of pay, based on weight, did not compensate them for their operation. This led to the specific appropriation for railway postoffice cars. In this connection it should be borne in mind that the purpose of the railway postoffice cars is to furnish ample space and facilities for the handling and distribution of mails en route. Therefore the space required is much greater than would be required for merely hauling the same weight of mails.

In regard to any proposal for Government ownership of postal cars, other facts as well as the above should be given consideration. Such cars must be overhauled, cleaned, and inspected daily. It would be necessary to either arrange with the railway companies for this service or for the Department to employ its own inspetcors, repair men, and car cleaners at a large number of places throughout the country, which would probably be more expensive than the cost to the railway companies in that respect at present. It would hardly be feasible to establish a Government repair shop. Therefore the Department would be compelled to use the shops of the several railway companies throughout the country. Without the closest supervision and attention of the Government's inspectors it could scarcely be expected that our cars would receive the same consideration in railroad shops as those owned by the railway companies. These shops are frequently congested, and it is probable that the railroad work would be given the preference.

Yours very truly,

Frank H. Hitchcock,
Postmaster General.

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VIOLATIONS OF THE INTERSTATE COMMERCE LAW

Representatives of the United States Department of Justice, working in conjunction with the United States District Attorney's office at New York have recently made extensive investigations of violations of Section 10 of the act to regulate commerce, which prohibits the misdescription of property offered for shipment to a transportation company when such misdescriptions are made for the purpose of securing lower than the legally established tariff rates.

The present published freight classifications of the carriers describe in great detail substantially every form and character of package of merchandise transported, and for each such package there is indicated, either by assignment to a particular class or otherwise, the rate which will govern shipments thereof. Articles which are bulky or of higher value or more likely to be damaged are so classified that the rates thereon are higher than on goods of less value and not so liable to damage and which are in such form of package that they may be more cheaply transported. Thus, hardware receives a lower rating than plated coffin trimmings or dental goods or fishing tackle, and similarly leather gloves are charged a higher rating than scrap leather, and so on throughout the entire classification, goods that would seem to be commercially analogous are differently rated under the conditions as above indicated, which are fundamental in formulating railroad freight tariffs.

These classifications are freely distributed by the carriers, and shippers are well informed as to the specifications therein affecting the goods which they ship, yet, notwithstanding this, there seems to be a desire on the part of a certain class of shippers to defraud the railroads of their legitimate charges by adopting shipping terms for their goods not in accordance with the actual contents of the packages, and by which, if same passes the carriers' receiving stations unobserved, rates lower than the lawful charges are procured.

It is with an effort to correct these fraudulent misdescriptions and violations of the law that the United States Department of Justice has undertaken its investigation. So far, the following indictments have been obtained, and in each instance the shipper has plead guilty, fines having been imposed as stated:

Henry A. Dix & Sons Co.—Describing dry goods as cotton piece goods. Plead guilty to two counts before Justice Hunt and were fined $250 on each count, making total fine $500.

Louis Lefkowitz.—Misdescribing leather goods (suit case handles, straps and suit case trimmings) as scrap leather. Plead guilty before Justice Hunt to two counts and was fined $250 on each count, or $500.

Eimer and Amend.—Scientific and chemical apparatus shipped as glassware. Plead guilty to two counts before Justice Hunt and were fined $300 on each count, making total fine $600.

H. S. Tavsanjian.—Describing oriental rugs as carpets. Plead guilty before Justice Hunt to two counts and was fined $250 on each count, or $500.

American Thermo Ware Company.—Shipping thermometers as hardware and optical goods as tools, also describing optical glass as common glassware. Plead guilty to two counts before Justice Hunt and were fined $300 on eacn count, or $600.

The American Thermos Bottle Company.—Misdescribing thermos bottles in nickel-plated cases as glass bottles. Plead guilty to two counts before Justice Hunt and were fined $200 on each count, or $400.

Joseph Fybush,of Fybush Brothers.—Dress suit cases described as leather goods. Plead guilty before Justice Hunt to two counts and was fined $200 on each count, or $400.

Edwards and Riordan.—Describing artificial flowers as millinery goods. Plead guilty to two counts before Justice Hunt and were fined $100 on each count, making total fine $200.

Tower Manufacturing and Novelty Company.—Misdescribing waste paper baskets as hardware and metal clip fasteners as hardware. Plead guilty before Justice Hunt to two counts and were fined $200 on one count and $100 on the other count, or $300.

American Bud Company.—Describing artificial flowers as millinery goods, plead guilty and was fined $300.

Camisa Brothers.—Describing artificial flowers as millinery goods, plead guilty and was fined $250.

In passing sentence in the two last cases recorded, Judge Hunt, of the United States District Court at New York, had the following to say:

I have been interested in reading of the contention of the railroads that they be permitted to raise their rates on freight because of the heavy demands for equipment, extension of systems and the increase of wages to workmen. In reading this I was reminded that the shipper must pay the rate charged for on the tariff. If the shipper does not pay the rate it is an element which in the aggregate amounts to an enormous sum which is not paid and ought to be paid.

This is one of the phases of the economic movement which has resulted in the railroads becoming honest. The situation is turning about so that the man who deals with the railroads must also be honest. It is incumbent upon the business men to study the classification of rates in which their goods fall and to conform to it. In this campaign which the Government is making those who are brought within the toils of the law at first may

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not suffer so severely as those who will come later, but this will teach them a lesson.

In this peaceful revolution which is going on in business affairs the merchant as well as the corporation with which he deals must be absolutely fair and square. The higher demands of citizenship make for the ostracization of the merchant who does not obey the law. Go back to your business and think about this.

These two cases make eleven in which the Government has secured convictions in its crusade against the misrepresentation of artificial flower manufacturers and others. It is said that the Government is now investigating the cases of more than one hundred and fifty other concerns which it is alleged, are defrauding the railroads.

THE STRIKE ON THE SUNSET LINES

A remarkable example of the intolerant attitude recently assumed by railway labor and the extreme measures taken to avoid proper and necessary discipline, is illustrated by the trouble which the lines of the Southern Pacific Company in Louisiana and Texas are having with their engineers, firemen, conductors and brakemen.

The question of discipline has been causing trouble between this company and its employes for some time, and finally culminated in a strike on November 13th, in spite of the fact that the company had formally requested the Federal Board of Mediation and Conciliation to use its good offices in bringing about an amicable settlement, and had duly notified the men to this effect.

The direct cause of the strike was the refusal of the company to negotiate jointly with the various brotherhoods through co-operative committees which had been formed to handle the men's grievances in both the engine and train service. The management was willing, as it had been in the past, to confer with the representatives of the different organizations individually regarding these grievances and to confer with them jointly regarding matters of interest to them jointly, but refused to confer with them jointly regarding matters which were of interest and concern only to the individual organizations.

After remaining on strike for four days, during which time public sympathy appeared to be largely on the side of the management, and local newspapers severely criticised the action of the men, they returned to work with the understanding that the management would accept the proposal of the Federal Board of Mediation and Conciliation to meet the committee of the four unions, provided, however, that if no agreement could be reached, the entire matter should go before the Board. Just prior to the strike the brotherhoods declared that they would not concede the questions involved were a matter for mediation and conciliation, but the public indignation aroused by their attitude, evidently induced them to alter their purpose.

Now, as to the real cause which influenced the labor organizations to seriously interfere for four days with industry and commerce in that section of the country. As heretofore stated, the points in dispute pertained almost entirely to cases of discipline. As all railway men know, the lack of proper discipline has been the worst handicap in railway operations for a number of years. In many cases the men have grown to feel that their organizations would protect them no matter what difficulty might arise and while, in the public press and on the platform, the officers of such orders have vigorously denied any effort to exert an undue influence, their constant attempts to have men reinstated after the most flagrant offenses, are so numerous and so well known as to need no further comment here.

Recently regulative bodies, both state and national, have been severely arraigning certain railroads for not maintaining proper discipline and the responsibility for the lack of it has been squarely placed upon the shoulders of the carriers. It is of peculiar interest, therefore, to note the character of the offense in the cases of discipline which have caused the friction between the Southern Pacific and its trainmen and which led to the strike.

The men have sixty-seven alleged grievances, some of which have already been the cause of conferences between individual committees of the respective brotherhoods and the management. It was with regard to a number of these, which the management could not see its way clear to justify, that the labor unions by co-operative effort, hoped to bring enough additional pressure to bear to procure a more favorable result, from their point of view. The management has now made public detailed statements covering all of these sixty-seven cases. The offenses in many instances are so grave as to clearly indicate the sinister influence upon railway discipline, of an organized effort to have the penalties imposed, revoked. For example, the first case cited involves the dis-

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charge of an engineer and conductor for operating a train over a bridge in the course of repair at a speed far in excess of the limit prescribed, resulting in derailment and consequent heavy loss. The brotherhoods demand these men's reinstatement with pay from date they were relieved from service. In another case an engineer and conductor were discharged because found on the main line with a light engine, in violation of rules, and on the time of a passenger train without protection, thus creating a condition which greatly endangered many innocent persons. The labor unions demand their reinstatement. In a third case an engineer was discharged on account of responsibility for a rear end collision due to gross carelessness. Responsibility of the engineer was admitted but a plea for leniency originally presented. The unions now demand his reinstatement. In a fourth case, an engineer was discharged for allowing his engine to run out of water when it was readily available by firing up the pump boiler. The investigation developed that the engineer had been drinking on the trip. The unions demand his reinstatement. In a fifth case, a conductor was discharged for failing to comply with rules, thereby causing a serious rear end collsion. The union demand his reinstatement with full pay.

Other cases include insubordination, failure to observe rules and other causes all of which, if not properly disciplined would soon reduce railway operations to chaotic conditions and endanger the lives of thousands of travelers to say nothing of other serious consequences which would follow.

It is on such a foundation, then, that railway labor of Louisiana and Texas recently held up a great transportation system and inconvenienced hundreds of travelers and shippers. It is to be hoped, under the circumstances that the road will not recede from its former position and that the whole matter will be referred to the Federal Board of Mediation and Conciliation. If such a course is pursued, we believe that railway labor, in that particular section of the country, will receive a reprimand which may induce it to take a broader point of view in future controversies of this character.

JAMES MCREYNOLDS,
Attorney-General of the United States.

ANNUAL REPORT OF THE ATTORNEY GENERAL

James C. McReynolds, attorney general of the United States, has submitted to Congress his annual report for the fiscal year. For the period under discussion it is stated that special agents of the Bureau of Investigation were engaged in investigating on an average of thirty-six complaints a month of alleged violations of the anti-trust law. It is pointed out, however, that in many instances the investigation failed to disclose facts that would justify the institution of formal proceedings. Many large industrial corporations in Mr. McReynolds' opinion, are curtailing the dangerous tendencies which would make them liable to prosecution under the Sherman anti-trust law.

In discussing the anti-trust cases decided by the Supreme Court it is stated that the plan decided upon for the severing of relations between the Union Pacific and the Southern Pacific companies, has been worked out successfully. Up to November 1, last, through conversion of the certificates of interest or of subscription receipts issued by the Central Trust Company of New York, $68,411,400 of the $88,357,000 of Southern Pacific stock transferred to the Trust Company by the Union Pacific had passed into the hands of persons who made the required affidavits.

Regarding the suits of a similar character now pending Mr. McReynolds says:

> The principle established by this decree has been adhered to in similar suits instituted during this Administration. Thus, in the suit against the Reading Company and affiliated corporations—the anthracite combination—the petition asks that

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the Reading Compauy be required to dispose of the stocks of the constituent companies composing the combination to persons not its stockholders or agents or otherwise under its direction or control. My fixed purpose is to oppose any plan of dissolution which would lease the separate parts of the unlawful combination under the control of the same set of men.

With regard to conditions in New England, Mr. McReynolds has recently expressed himself to the effect that he intended to allow the New Haven's new board of control every reasonable opportunity to remedy the present chaotic conditions by financial reconstruction and otherwise rather than take the situation into the courts.

In the Attorney General's opinion, the situation in New England is of a serious character and must be corrected but he is hopeful that the present control will be able to work it out without an effort on the part of the Department of Justice to correct it by litigation. To these ends the New Haven will receive every encouragement from the Attorney General who also believes that present conditions justify great forbearance before suit is brought. In fact, it is understood that notice has been served upon the new management that if they can within a reasonable time limit, put into operation a corrective system, the Department of Justice will show them every reasonable consideration in the matter of starting litigation.

While Mr. McReynolds has adopted this attitude of forbearance in regard to the New Haven, he wants it understood that he regards the situation as distressing and that his Department is responsible to the people of that section for a prompt readjustment of transportation conditions.

Mr. McReynolds well realizes the enormous investment involved, and it is the knowledge that financial reconstruction cannot be accomplished in the wink of an eye that impels him toward his policy of forbearance. But the new board must accept in principle the ideas of the Department of Justice, and must see that these principles and reforms are soon set in force.

The Attorney General regards the selection of President Arthur T. Hadley, of Yale, to the board of directors as one of the best steps that could have been taken toward the kind of a reconstruction that will impress the people of New England with the sincerity of the new control. He said President Hadley enjoyed the confidence and respect of the great mass of the people of the section as well as of the country at large, and that his presence on the board of directors increases public confidence in the desire of the new management to bring about better conditions.

Help!

THE uniform and vigorous manner in which the press of the country is supporting the carriers' appeal for an increase in freight rates, is little less than astonishing when their attitude of only a comparatively short time ago, on this question, is taken into consideration. It shows a remarkable change in public opinion and a growing belief that the prosperity of the country depends, in a large measure, upon a railroad policy which will provide sufficient funds for the carriers to maintain and operate a progressive and efficient plant. The following from *Leslie's Weekly* is fairly illustrative of a rather belated public appreciation of the fact that an arbitrary curtailment of necessary railway expenditures will vitally affect practically every branch of commerce and trade. Furthermore, it is of interest to note that this support is coming, not from any particular political party or organization, but from practically all sources including shippers, commercial organizations, lawyers, bankers, economists and in a number of cases, public officials.

"Workers in every shop! Do *you* want the steel and iron mills to keep running? Of course you do. Then urge the Interstate Commerce Commission to give the railroads fair play. They stand ready to spend $2,000,000 *a day for the next five years,* for work and material urgently required. They cannot do it unless you help. The cost of material and wages is advancing and the income from traffic diminishing. Increase the income! Help!

"Merchants! Do *you* want your stores filled, your counters crowded, and your bookkeepers busy? Then keep the factories busy and the pay envelopes filled. This will keep your cash registers singing all day long. Help!

"Railroad employes! Do *you* want higher wages and lighter hours? Then make common cause with your employer who is fighting for a chance to live. Demand that the Interstate Commerce Commission give him that chance or let the Commission be abolished. It is your fight as much as anybody's. Help!

"Farmers! Do *you* want the best prices for your products? You get them only when wages are high, workmen busy, railroads prosperous and factories running night and day. Help!

"Workmen, merchants, railroad men, bankers and farmers! Do you all want prosperity? You can have it. Make your choice between the statesmen who build up and the demagogues who tear down. Help!

"And remember that a demagogue never filled a pay envelope."

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Contemporary Opinion

The Unit.

THE following, by an unknown author, was included by B. A. Worthington, president of the Chicago and Alton, in a "Memorandum Respecting Allocation of Railroad Expenses," submitted to the Interstate Commerce Commission in a case affecting the Wheeling and Lake Erie, while he was receiver of that road. Mr. Worthington said that "while this sums up the situation in a lighter vein, yet it does so fully as accurately as has been done by any one who has had an opportunity to investigate the subject."

A ton one mile and an engine mile, and a tractive haul as well,
A loaded car and an empty car—then his eyes began to swell;
A commercial mile, a net ton mile and a gross ton mile, oh dear!
Tons and miles and trains and cars, it surely is most queer.

If we get five cents for hauling a crab from Boston's quaint old streets
To Friscotown, by the Golden Horn, what are the net receipts?
How much for coal, for wear and tear, for all the trainmens' pay?
How much dead weight does the engine haul if the crab dies on the way?

How many grades to the lineal mile, how many ties in a section?
The engine's loss and the waste of wood? Oh, is there any connection?
Oil, tallow and waste, the water supply and fuel for locomo's,
Repairs and renewals of engines and cars, goodness only knows.

How many tons to a pint of oil, how many ton miles to boot,
And ton miles to a ton of coal, as the engine goes toot-toot?
What is the total tractive power? It's as easy as A B C,
C square into S into eighty-five, P divided by D equals T.

Government and the Railroads.

(From the New York *Times*, Ind't Dem.)

IT would be useless to urge that the Government should have a heart toward the railways and other public utilities, but it ought to have a conscience. Yet the fact is that the Government graft rivals any known in the business world, and that a virtue is made of oppression and extortion practised for the good of the people. The case of the postal parcels raises the plain question whether the people wish to be receivers of goods taken from those who protest the taking. The railways claim that they are not fairly paid for service in carrying the parcels. At the same time the postoffice is claiming a profit originally placed at $10,000,000, and recently raised to $30,000,000. We believe that the people appreciate the postal parcel service enough to be willing to pay for it, and that they would support a plea for fair play. A price paid in accordance with a statute may or may not be fair. It cannot be admitted to be fair so long as those who render the service do so under duress. When profits earned in this way are said to justify the extension of the Government service to the telephones and telegraphs the outlook is nothing short of alarming for the taxpayers. When the Government runs the railways and the telegraphs there can be no more profits made by not paying bills. The bill will be paid or the service will stop, regardless of the treasury deficit.

Another example of the conscienceless attitude of the Government toward public utilities is shown by the attitude of the counsel employed by the Interstate Commerce Commission in the matter of the advance of freight rates. Mr. Brandeis proposes to use the application as a lever for reforming the alleged abuse of interlocking directorates. The railways ask to be allowed to pay their bills, and Mr. Brandeis proposes to listen when they have improved their financial methods in a manner satisfactory to him. It is as though when your tailor sends in his bill you should refuse payment because he does not live with his wife. He ought to live with his wife, and it might be that if his bills were paid he might be better able to do so. But the payment of the tailor's bills and the reform of his morals ought to be dealt with each on its own merits. Nobody would object to Mr. Brandeis's ravaging reforms in their season, but the payment of bills cannot await the process. The Interstate Commerce Commission reports this week that the railways' gross earnings for September increased $17,000,000, and the net fell $5,000,000. The railways are paid by piecework. They are indisputably working harder for less pay. They have pieced out their earnings by borrowing and spending $335,000,000 which must be paid or funded within a year if the railways are to be kept solvent. That the companies can travel this road no farther appears from the economies which they are practising to the damage of other interests than their own. The railways' contracts for rails this year have decreased seventy-two per cent, car contracts have decreased forty-two per cent, locomotive orders decreased thirty per cent, structural orders decreased twenty-five per cent. The Eastern independent steel companies are running forty per cent capacity, and the larger interests are doing but little better. It is idle to say that the railways are wilfully extravagant when they are not allowed to control the expenditure of their income. They are told how much money they must spend, and how they must spend it. They ask to be allowed to collect the money they must disburse, and they are told that they must reform their morals. They shold do whatever they ought, but they must meet their bills at the due dates. Even if Mr. Brandeis were to assist the process of giving them permission it would be months before the order were entered. Meanwhile the outlook is that the larger rates if collected will be upon a smaller volume of business.

In business not Government controlled, prices are raised when business is overwhelming and prices are lowered when dwindling business needs

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encouragement. The reverse of this customary and approved practice is a novelty whose outcome is obscure. In contempt of counsel Commissioner Marble said to the *Times* that the Commission was striving to make private management of railways profitable. The next day he recalled his words, and Counsel Brandeis's utterance of stern virtue was made. This oppression of the railways is practised not because Counsel Brandeis is better than other men, or the Commissioners worse, but because of an assumed popular mandate. The people have allowed the oppression to run along on the idea that the railways were too big and rich to be damaged. The people are in the way to discover that the railways can be injured, and that the injury will recoil upon the people.

Wages and Freight Rates.

(From the Philadelphia "Bulletin.")

IF the increase in the cost of individual living is sufficient justification for the addition of seven per cent to the wages of the railroad conductors and trainmen, logically the increase in the cost of railroad living is justification for the advance of their earning power through passenger and freight rates. The Board of Arbitration on the trainmen's demands recognizes the fact that a ton of freight in Eastern territory is moved more than three miles for the value of a two-cent stamp, which is the cheapest railroad service to be found on the face of the globe, but it ignores that fact in its recommendations, because it is forced to admit that labor couldn't live on wages based on that rate. Obviously, if existing freight rates are not adequate to provide a living wage for labor, they cannot provide living income for the railroad operators.

But the Board of Arbitration "passes the buck." The question of rates, the problem of the railroad's living, belongs to the Interstate Commerce Commission, which stands as a challenger of every proposed increase of rates, suspends the new schedules for six months and employs Mr. Brandeis to use whatever resource may be at his command to controvert the railroads' plea. The finding of the Board of Arbitration is binding on the roads, and it ought not only to be accepted without challenge by the Interstate Commerce Commission but it should prompt them to immediate action on the rate advances. The increased wage schedule is retroactive and dates from the first of October, but the increase in rates which is to provide for these additional wages must wait the pleasure of the Interstate Commerce Commission and its proposed muckraking investigation.

Ending the Business Uncertainty.

THE Baltimore *Sun* of December 4th, contains a stirring editorial under the above caption, in which it quotes with approval the statement made by President Wilson in his recent message to Congress to the effect that "it is of capital importance that the business men of this country should be relieved of all uncertainties of law with regard to their enterprises and investments and a clearer path indicated which they can travel without anxiety."

The *Sun* points out that uncertainty does more harm to business than almost any other one thing, and in this particular declares that "uncertainty with regard to the railway situation has a tremendous depressing influence at this moment. The railroads will not spend money until they find out whether or not they are to get the increase in freight rates which they ask, and business men will not take any important steps until they know what railroad service they are going to have in the near future."

After discussing other developments which are more or less responsible for the present conditions of uncertainty but which in the *Sun's* opinion, particularly with regard to the tariff and currency legislation, have been inevitable and necessary, the railroad situation is again referred to in the following manner:

"Yet after allowance is made for such measure of uncertainty as is necessary and inescapable in these connections there remains a large amount of it that can be removed by prompt and frank action on the part of the Administration, Congress and the Interstate Commerce Commission. And upon such action probably depends all the difference between an immediate revival of business and a long-continued period of depression.

"We have included the Interstate Commerce Commission in the list of those from whom prompt and frank action is demanded, because we strongly believe that the most important step of all toward immediate business prosperity is the granting of the request of the railroads for increased freight rates. We have many times stated our reasons for this belief, but at this time will only mention one fact, one brought out at the recent hearing before the Interstate Commerce Commission. Since 1910 the Pennsylvania Railroad has increased its property investment by $207,000,000. The net income, however, instead of keeping pace with the enlarged investment was actually $11,000,000 less in 1913 than in 1910. Nor was the Pennsylvania Railroad an exception. During the three years in question all the roads included in the number which now ask an increase of rates added $659,000,000 to their property investment, but the net income of all of them was $16,000,000 less in 1913 than in 1910. Explain this as you will, no one is going to invest in railroad properties so long as this situation continues. Yet until the railroads do get the money to enable them properly to take care of the business that is offered them there can be no revival of business. This is fundamental."

Favor Higher Freight Rates.

E. W. BEEDLE, president of the Henry O. Shepard Company, of Chicago, in an article in a recent edition of the *Inland Printer* favors the five per cent advance in freight rates asked by the steam railroads of this country. He believes better service will result and that an advance in rates will be in the interest of general prosperity.

Mr. Beedle addresses himself in particular to business men connected with the printing and publishing trade. He points out that the proposed advance is favored by chambers of commerce in St. Louis, Cincinnati, Baltimore, Pittsburgh and Philadelphia.

Mr. Beedle asserts that the conditions surrounding the higher freight rate movement at this time are considerably different from what they were in 1910. "Shippers," he says, "two years ago protested mainly on two grounds—first, that the

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carriers could not show their need of greater revenue, and second, that the proposed schedules would not fall equitably on the several classes of traffic. Industrial executives also complained that the managers had not conferred with them before filing advances. This year all three of these conditions seem to be met.

"Business men understand that in order to increase plants it is necessary to raise new capital and that surplus earnings are required as a guarantee that a return can be paid on additional stocks or bonds," says the publisher. "Business men cannot afford to have the railroads of the country fall into a situation where augmentation of rolling stock, road and terminals is retarded. Poor service would be a greater injury to the shippers than they would suffer from any increase in rates which the Commission is likely to sanction. Railroads, too, with their vast purchases and payrolls, are an enormous factor in national prosperity. Every interest gains when the roads are vigorously carrying out projects of importance."

Business Dependent on Rate Action.

J. S. BACHE AND COMPANY, discussing the business outlook, say:

"Immediate relief for the business situation, as we have again and again asserted, depends upon the action of the Interstate Commerce Commission on the request of the railroads for increased rates. There is said to be a growing belief among shipping authorities that the roads will be allowed some advance, not possibly the five per cent horizontal increase, but more or less, as the Commission may figure out the needs in different directions. That some increase will be allowed, it is said, is being nearly taken for granted, but the long, drawn-out proceedings of the Commission would not, at the earliest, come to a conclusion until, the railroads think, some time in April, which leaves a long winter of discontent, with the army of unemployed liable to be constantly added to. It is already reported that one railroad is planning to let out 10,000 men. Perhaps this is the only remedy, though a hard one, for the unwisdom of politics. Politicians have been piling up restrictive laws and forcing from corporations much more than is just and even more than is safe. But when they hear from the great body of laborers who furnish the votes, more heed will be paid than heretofore."

The Railroads' Additional $6,000,000 Burden: Who Will Pay It?

IN a recent weekly news letter, the banking house of Hambleton and Company, of Baltimore, discusses the recent decision of the arbitration board by which the Eastern trainmen were awarded a $6,000,000 increase in wages.

If, as the committee, in allowing the increase says, the cost of living has advanced greatly in the past few years and therefore the trainmen are vitally affected, how much more so are the railroads? The steady declining net revenues of many of the roads coupled with the almost prohibitive terms upon which they have been obliged to market their securities, is a matter of serious consideration. The cost of railway labor has increased enormously during the past ten years, while everything else that enters into the operation of a modern transportation line has advanced anywhere from 20 per cent to 50 per cent.

To quote from the letter referred to:

"We are all of us directly or indirectly dependent upon the prosperity of our neighbors in direct proportion as a neighbor is in big or little business, a large or small consumer. The largest industry we have in this country is agriculture, and incidentally the farmers constitute the largest consumers of money, labor and manufactured goods. The farmer now is prosperous throughout the country, due to the abundant crops and the advanced prices received for his produce. Our next largest business is railroading, and it is unquestionably true that their income over expenses does not show the margin that indicates prosperity. Is it not reasonable that this condition of our second largest business is in a great measure responsible for the stagnation in finance and commerce throughout the country?

"The public, heavily interested as it is and must be in the welfare of the country and the continued prosperity of its people, should realize that the railroads must be kept up to standard in order that facilities may keep pace with shippers' demands. It, however, would be idle to say that there is not abroad in the land a spirit hostile to any move which would mean increased revenue to the roads, and it should now be the duty of those who hold that point of view to study the matter with care and with an eye single to the country's good, not biased by personal animosity toward corporations seemingly wealthy and prosperous. The increase of freight rates does not mean that the railroads are to be allowed to dip at will into the pockets of shippers and extract therefrom sums sufficient to meet any deficit caused by the increase in labor, maintenance and operation. What it does mean is that the transportation companies be allowed to increase, fractionally, their freight charges, so that a proportion of the aggregate receipts therefrom will meet the increasing burden which is now placed upon the carrier.

"The result of a five per cent increase straight along the line would not, so far as individuals and shippers are concerned, amount to a great deal over the present rate, but it would be the million fractions of a cent which would enable the railroad corporations to maintain a factor of safety in earnings sufficient to take care of the overload of labor and material charges. If, under the award, the carriers must annually expend six million dollars more than they have for labor, how long will it be before the railroads are in a position where they will be unable to meet their obligations by reason of the continued additional drain upon their resources, with no correspondingly increased source of revenue to supply such demand?"

Some Possible Results of Government Ownership.

(From the *Santa Fe Magazine.*)

WHAT effect would government ownership have upon American railroads and railroad men?

Well, in the first place, it is against the law for government employes to lobby for more pay or better working conditions. Railroad employes would find themselves unable concertedly to influ-

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ence legislation in their own behalf. They would not be foot loose in that respect, as at present. Nor would they find it as satisfactory to deal though the Interstate Commerce Commisison or a special board of non-political arbitrators—even if they could deal at all, which is doubtful, for:

The government refuses to recognize as such any brotherhood, union or association. Railroad employes would work on the same basis as do employes in the government printing office, engraving bureau and letter carrying service. The open shop is the avowed policy of the government, which, according to the viewpoint of the individual thinker, is a good or bad feature.

No pension is allowed the government industrial employe. In this feature privately owned railroads are away in the lead over any other industry. Millions yearly are spent by railroads in pensioning faithful employes. In this they are pointing the way to the lagging government authorities.

Any employe cannot sue the government if injured. Thousands of federal employes yearly are injured in service, and of these but few are compensated. In railroading, every effort is made to give suitable employment to a crippled employe, besides which he is properly recompensed for injuries sustained, compensation varying according to whether the employe was partly to blame or not. In any event, if not satisfied the employe is at liberty to sue for what he believes his due. Doctor Rubinow reports 17 fatalities and 124 injuries in the rural mail delivery service, and 8 fatalities and 440 injuries in city mail delivery, for none of which did the government pay a cent in compensation. Altogether he mentions 1,600 injuries, 300 of which were fatal, without compensation to anyone. If that happened in railroad or other industrial service, think of the bedlam in Congress with a thousand tongues all trying at once to voice excoriations and anathemas.

Politics would rule under government ownership. Pull rather than ability would be the password, for the more important executive positions would not be under civil service regulations. This would result in the decline of the personnel of railroad officials, and subsequently of the men. Instead of officials being chosen by the representatives of vitally interested stockholders, who would demand the employment of the best officers obtainable, the better salaried railroad positions would be political plums to perpetuate in office the ruling party, just as patronage is dished out in the customs, excise, postoffice and other service. Employes could not be expected to continue loyal to such men, drawing larger salaries but knowing less about their work than the men under them.

Every railroad man at present takes pride in the high standing of railroad men as a body, and it would be bitter to him to see that standard lowered.

To cover the results of inefficient management, rates could be raised at will, or any political party in power fearing to raise rates, yet wishing for political purposes to show a surplus, would curtail necessary maintenance expenditures. The results of such a policy would not be apparent until some years later, when the country would pay dearly for rehabilitation. This is the history of government owned roads in other countries.

Arthur T. Hadley says in *Harper's Magazine*: "State railroad ownership too often means not the ownership of the state as a whole but of a small body of men who happen to hold political power at the time. It is neither more nor less than the substitution of a ring of political managers for a ring of railroad managers."

Dr. Jacob Gould Schurman, president of Cornell University, recently expressed the view: "In the United States the central government possesses under the Constitution a minimum of governmental functions. Yet even among us the public business is conducted with much less energy and efficiency than private business. Although some European states own and manage the railways—never, however, with great success—we hesitate to invest our government with this function because of its incompetency as a business agent and the inefficiency to which it is doomed by partisan politics."

Following is an extract from a letter by the Hon. Evelyn Cecil, M. P., on the railway nationalization question in Great Britain: "The Western Railway of France, with its enormously enhanced deficit, its greater inefficiency of operation and the insubordination of its staff since it has been taken over by the state are now notorious. The whole process of nationalization in Italy was accompanied by widespread strikes, and in one case the appointment by the government of a most capable officer was directly afterward canceled, apparently on the ground that this highly reputed expert was objected to by the men as too strict a disciplinarian. It has been charged in the Canadian parliament that during political campaigns the government increases the number of employes on the Intercolonial Railway (which is under government management) to influence election results. The Intercolonial Railway of Canada has accumulated an $80,000,000 deficit to be borne by the Canadian people."

A number of European countries, particularly Austria and Denmark, have raised their rates substantially to cover the losses sustained under inefficient governmental operation, and in Denmark the capitalization of the railroads has increased 27.13 per cent within the last five years, while the mileage has increased but 1.94 per cent.

Under political control railroad building would be carried on where the parties in power locally or nationally should decree it should be done, rather than where the possibilities of industrial development reasonably would warrant the construction of new lines. The same policy would be pursued with reference to railroad development as is pursued in connection with the construction of postoffices and other public buildings—the Senators and Congressmen would pull for the selfish welfare of their districts, regardless of the best interests of the country as a whole. This is shown in the erection of beautiful marble postoffices and other government buildings in unimportant municipalities. In return for support in securing the erection of such buildings or in carrying out other pubilc works, the lawmakers whose political welfare is affected thereby trade their support for unwarranted expenditures in the districts represented by other lawmakers. And there you are. A complacent public foots the bills. The pork barrel and log rolling would be the *modus operandi* of government ownership of railroads.

Though bids would be asked for railroad supplies, inevitably the great bulk of purchases would in time go to comparatively few concerns. This

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would be the natural sequence. Rarely are two manufacturers' goods of exactly the same quality, and on the pretext of quality certain concerns could through political influence or at the caprice of one or two people in charge of purchases, procure all the business in their respective lines. Then, instead of having a great many concerns of various financial standings furnishing the various railroads, we should have a few great industries with their branches practically monopolizing the entire railroad supply business. Nor would heavy freight shipments over certain lines be instrumental in the different manufacturers getting at least a portion of the business, as is now so commonly the case. All the roads would be owned by the government, and it would be immaterial to it which roads any shipper used—the shipper would have to ship, and all the money would find its way into one coffer anyway.

Those in executive positions of the greatest importance, as well as those under civil service, would hesitate about making changes in organization, installing labor-saving devices or instituting new methods when, continuing in the old way, they would be free from criticism, whereas if they sponsored any innovation which did not operate successfully they would be targets for censure by the political opponents of the party in power, and they would be told to cease being so openly active or their jobs would be the forfeit—resulting really in serfdom and penalizing initiative. This would be greatly in contrast with conditions at present, for in no other industry is progress so exemplified as in railroading, and no other industry claims so many master minds.

The government, through its agent, the Interstate Commerce Commission, always is prone to hold the railroads strictly to account in the matter of prompt compliance with its demands for reports and statements. Yet how does the Commission carry on its own work in this respect, hampered, as it is, by being under government control? Here is an example: Monthly reports of earnings are made by all railroads. The Interstate Commerce Commission calls for these reports, made out on special blank forms which it supplies the railroads. The consolidated report issued by the Interstate Commerce Commission is, it easily can be understood, something of great interest to those having heavy railroad investments as well as to financial publications and others. It therefore is aimed to have this report out each month as speedily as possible. Then what must one think when he learns that the blanks on which the July reports were to be made out were not sent out until the middle of September instead of the middle of July? It merely shows that the printing of the most important blanks sent out by the Interstate Commerce Commission was delayed two months while the political speeches of Senators and Congressmen were being rushed into pamphlet form and franked broadcast to serve the interests of these gentlemen. There is no need of going on and reciting thousands of other instances of the deleterious effect of politics upon business under government control. But on the theory that the king can do no wrong it is considered perfectly proper for government agencies to conduct their affairs in this manner.

Government ownership of railroads is not so improbable as some people think; and those most active in securing it will be railroad directors having at heart the proper interests of the stockholders they represent. One readily can perceive a reason for this when he remembers that in the fiscal year 1912-1913 the gross income of the railroads increased $384,000,000 over those of 1909-1910, while the net income increased but between three and four million dollars. And don't forget there were over ten thousand more miles of railroad in 1912-1913 than in 1909-1910. Does anyone believe that to be good business? Would any American merchant or manufacturer feel happy over such a ratio in his business? It means the railroads did $1,000 more business on a greater invested capital to net but $10. That is too narrow a margin for safety. The slightest caprice of fate or fortune would wipe it out and create a material loss.

Railway Valuation.

THE November issue of the *Engineering Magazine* publishes an unusually interesting and comprehensive article on the indirect results of national railway valuation, by J. Shirley Eaton. After outlining how serious and how manifold are the problems involved in the public valuation of railroads, Mr. Eaton concludes his article as follows:

"Railroad valuation undertakes to apportion to each thread in the intimate weave of the railroad fabric a justifiable—a legal—value. The work is complicated and precise; it deals in epitome with large principles, and its items group forward into the totals that are to make or mar our railroad credit. Mr. Lincoln was once asked how long a man's legs should be. The inquirer had worked out elaborate formulas on which to base the answer. Mr. Lincoln thought profoundly for a minute and then replied, 'Long enough to reach to the ground when standing.' There are nice questions to be solved; an unthinkable amount of detail to be accomplished in order to value the railroads of the United States. But when all is done, the legs must be long enough to reach to the ground when standing—the allowed valuation must so satisfy present investors that it offers the conditions which will attract future investors. Government may fix the limits of confiscation on the one hand, and of extortion on the other hand, but if it interferes too much in the adjustments of what should be worked out naturally between these limits, it will impose inflexible conditions, destroying expansive adaptability—and the result will be paralysis.

"A valuation which places its emphasis on cost of reproduction of physical parts runs to an appraisal upon the cost basis of the service rendered by the railroad, and lends itself to a theory of regulation which is unfair because it is illogical. In so far as the administration of the law leans to an emphasis on the physical valuation at the expense of the intangible elements of value, his Domesday of American railroads will fail in the large constructive results which the powers and wide discretion vested in the High Commission would lead us to expect. Instead of opening the way to a large expansion, the valuation undertaking may only serve to mark the passing of an era of unprecedented development, even if the development has been at times misdirected. It cannot be stated too emphatically that the function of regulation, of which this valuation is intended

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to be a determining factor, is merely to hold in co-ordination the competitive forces, eliminating the destructive competitions and stimulating the productive competitions with an eye single to the largest social efficiency."

In the course of his article Mr. Eaton presents a definition of regulation which is surely worthy of the serious consideration of all those who are interested in the proper development of the country's transportation systems. He says:

"Regulation should result in creating more and always more joint profit. Its whole and only real function is to hold in co-ordination and in equal and fullest play *all* the constructive forces, *both of railroads and industry.* This it does by performing its function of eliminating the obstructions to team play which cross purposes, unfair methods, strategic interruption of free action, always set up."

As compared with the present day regulation in which personal or political motives wield such an important influence, it is hardly necessary to state that a regulative policy based upon such an ideal principle, would be accepted most gladly by the sorely perplexed and harassed railway managers.

In another statement Mr. Eaton suggests that perhaps the valuation of railroads may be but the entering wedge for their government ownership, which, in turn, may extend itself to the government ownership of the plants of production and so project us at last into the full realization of socialism

While this is a far call into the future, such ultimate development is by no means improbable in view of the trend of recent political activities.

The Case for Increased Railroad Rates

OPENING STATEMENTS BEFORE THE COMMISSION BY DANIEL WILLARD, PRESIDENT OF THE BALTIMORE AND OHIO RAILROAD COMPANY, AND F. A. DELANO, RECEIVER OF THE WABASH RAILROAD.

ON November 24th, the Interstate Commerce Commission began its consideration of the petition filed by railroads in Official Classification territory for permission to increase their freight rates five per cent. Judged by the manner in which the daily press is reporting and discussing these proceedings, it is receiving a nation-wide attention and the expressions in favor of such increase so far outnumber those against it, as to point to an overwhelming popular sentiment in its favor.

On the opening day of the hearing, President Willard, of the Baltimore and Ohio, and Receiver Delano, of the Wabash, made the opening statements in support of the necessity for the increases requested. Mr. Willard who is chairman of the Committee of Railroad Presidents, appointed to present the railroad case to the Commission, spoke as follows:

DANIEL WILLARD.
President, Baltimore and Ohio Railroad.

"The railroads, parties to this proceeding, include practically all the lines operating in so-called Official Classification territory, which is substantially all that part of the United States east of the Mississippi and north of the Ohio and Potomac rivers. The same companies were also parties in a similar proceeding before this Commission in 1910.

In its report of that investigation, known as I. C. C. 3400, the Commission made a comprehensive review of the whole subject and found that the carriers had failed to establish the need of additional revenue from increased rates at that time. It recognized, however, that it might come about in the future, as the carriers feared, that the net earnings from the then existing basis of rates would be inadequate, but held that this could only be determined by an actual test. It said: 'If actual results should demonstrate that our forecast of the future is wrong, there might be ground for asking a further consideration of the subject.'

"Since 1910 sufficient time has elapsed to afford the actual test, and with the records of operation for the three intervening years available, the same carriers appear again, believing that the results of the actual test will now demonstrate the necessity for additional revenues or net earnings.

"In I. C. C. 3400, page 19, the following language is used:

Our railroads must be maintained in a high state of efficiency. This the public interest demands. Commerce and industry cannot afford to wait on transportation facilities. Our rates should be such as to render possible a high-class, not an extravagant service.

It is generally conceded that within the next few years, if our means for transportation by rail are to keep pace with the calls upon them, very large sums must be expended in the way of new construction and new equipment. While some small portions of this may come from current earnings, the great bulk must be new capital. This capital must be obtained from the investing public.

If, therefore, we are to rely on the future, as we

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have in the past, upon private enterprise and private capital for our railway transportation, the return must be such as will induce the investment. It is therefore not only a matter of justice, but in the truest public interest that an adequate return should be allowed upon railway capital.

"While the carriers fully recognize and acknowledge their obligations to the public, and are alive to the responsibilities so imposed, they are helpless to fulfill these obligations, unless the financial result of their operation is such as to inspire the confidence of private capital and encourage the support of private enterprise, and the result of operation during the last three years is not such as to inspire the one or encourage the other.

Problem Not Merely of Dividends.

"This as we view it is the situation to-day, and if we are right, it is respectfully submitted that there is at this time no more important question before the people, nor one the correct solution of which will do more to stimulate healthy commercial activity and promote industrial growth. It is a mistake to think that the problem is merely a question of dividends to railroad stockholders, although that feature is of course involved. The problem in a broad and true sense affects all interests, and the outcome of this particular case —whichever way it is decided—will mark an epoch, because it will, in effect, very largely determine whether we shall as in the past continue to look to private capital and private enterprise for our transportation requirements, or be compelled finally to accept the only alternative possible. It is recognized, of course, that railroad expansion and improvements must go on, and any tendency or condition that threatens to seriously check, if not completely stop such expansion in a large and important part of the United States, becomes, because of that fact, a matter of vital importance.

"This Commission in its report, I. C. C. 3400, said that the railroads had failed to establish a necessity for higher rates at that time. It also said, in effect, that it believed that from the increase in gross earnings which would undoubtedly come to the railroads, together with such economies as the companies might effect, the net earnings of the future would be adequate, but it also said that should it come about that its views were not sustained by future developments and should it appear at any time that there was a real necessity on the part of the carriers for increased revenue, in order that they might be in position to provide such facilities as the public required, that it would, upon request, give the matter further consideration.

Net Earnings Decreasing.

"During the first two years immediately following the decision, the commerce of the country showed little, if any, change in volume, but during the last fiscal year there was a marked activity in business of all kinds, and the gross earnings of the railroads generally for the year ended June 30, 1913, were the largest in their history. Notwithstanding the increased gross, however, the railroads in Official Classification territory continue to show decreases in net earnings, and as the Commission well said in the opinion above referred to, 'It is the net, not the gross, we must consider.' This decrease in net earnings has been due largely to greatly increased expenses, as pointed out in the petition which the carriers filed for rehearing on May 14, 1913, from which I will quote:

> The cost of conducting the business of the carriers has been, and is being, steadily increased by increases in capital charges; increases in wages, in taxes, by burdens imposed by legislative enactments, such as extra crew laws, employers' liability and compensations acts, by the elimination of grade crossings, either in part or in whole at the expense of the carriers, and in various other respects, and it is felt that existing rates are insufficient to afford just and reasonable compensation and return to the carriers, and are unreasonably low in view of the value of the service afforded thereunder.

"In the application for rehearing, just referred to, the carriers asked permission to advance freight rates in Official Classification territory on the basis of five per cent, with reasonable minima and with the modifications necessary to preserve differential relations. The Commission thereupon ordered that this proceeding of inquiry be instituted into the following matters:

> First, do the present rates of transportation yield adequate revenues to common carriers by railroad operating in official Classification territory?
> Second, if not, what general course may carriers pursue to meet the situation?

"The railroads, parties to this proceeding, have prepared new tariffs, advancing freight rates as suggested in their petition, and have placed the tariffs on file with this Commission, and at stations, so that all concerned might be fully advised regarding the effect of the proposed increase.

"In order to develop the whole situation and to show the actual operating results obtained during the last three years, tables have been prepared, containing such information as is necessary to show the changes that have gradually come about in property investment, earnings, cost of operation, income, etc., not only during the three-year period, but also for the last ten years. This has been done because the influences which have brought about the existing conditions have been operating over a considerable period of time. The present situation, and the gradual but consistent tendency in that direction are both clearly indicated in these tables. Separate tables have been prepared for each of the several companies for the periods above mentioned, and a combined statement giving the consolidated figures for all of the companies has also been prepared, and all of the tables havs been or will be filed with the Commission.

The Increased Investment.

"A brief reference to some of the more striking features in the statements may be pertinent at this time. The consolidated statement shows, for instance, that during the fiscal years ended June 30, 1911, 1912 and 1913, the railroads interested in this movement increased their property investment $959,862,000. The gross earnings of these roads during the last fiscal year were $1,424,119,000, or $180,775,000 greater than they were in the fiscal year ended June 30, 1910.

"The operating expenses and taxes during the last fiscal year, for the same roads at $1,087,365,000 were $203,087,000 greater than they were in 1910; so that even though these railroads earned in gross during the last fiscal year $180,775,000 more than was earned three years previous, the net result, after paying operating expenses and

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taxes, was actually $16,311,000 less than it was in 1910, notwithstanding the fact that over $659,000,000 of additional money had been spent in the meantime for additions, betterments and equipment. These companies apparently not only failed to earn any return whatever upon the new capital invested, but saved even less from gross earnings, as return upon the original property investment, than they were able to show before this large additional expenditure was made.

"Another table has been prepared showing the combined results, for the same period, of the Pennsylvania, New York Central and Baltimore and Ohio systems, these particular companies having been referred to by the Commission in report I. C. C. 3400, as typical systems. This table shows that on these three systems during the three-year period mentioned, the property investment was increased $423,431,000. The combined gross earnings during the same period increased $109,380,000, while net operating income of all three systems, after paying operating expenses and taxes, was $8,380,000 less in 1913 than in 1910, notwithstanding the fact that over $423,000,000 had been spent in the meantime for betterments, additional equipment, etc. I might also add that in the single case of the Baltimore and Ohio System, the tables show that the property investment of that company was increased over $56,000,000 during the same three-year period; the gross earnings in the meantime increased over $13,000,000, but the net operating income in 1913, after paying expenses and taxes, was $660,000 less than in 1910.

New Capital Earned Little or No Return.

"The separate reports of the roads or systems which will be submitted show that the same tendencies have operated in greater or less degree in the case of each individual company. In brief, it appears to have come about that the new capital invested in railroads in Official Classification territory, during the last three years, has earned little or no return; in fact, these properties generally are actually earning less net, after paying operating expenses and taxes, than they were earning at the beginning of the period, and before the $659,862,000 had been spent. It would seem that the mere statement of the case should be sufficient to indicate the serious situation which confronts not only the railroads in this territory, but also those industries and commercial undertakings which depend upon the railroads for transportation.

"The result, as might be expected, of this constant tendency toward diminishing net returns, has been to seriously check, if not altogether stop, the normal development of railroad facilities in the territory affected. The tables show that during the ten-year period these railroads found it necessary to increase their property investment approximately $2,000,000,000, an average of about $200,000,000 per annum, and it is certain that an equal if not greater amount per annum will be necessary to meet the requirements of the future.

"Railroad managers would hardly be expected, under the circumstances just stated, to continue large capital expenditures for betterments and additions, if possible to avoid doing so, at least unless they had reason to believe that something had happened, or was about to happen, which would materially change the situation. It is believed that the preceding statements, if confirmed, are sufficient in themselves to justify the request which the carriers now make for advanced rates, unless it can be shown that the causes which have operated to bring about such results are of a temporary character, or have now ceased to exist. As already stated, while the matter has only recently reached an acute stage, the influences which have as a whole served to bring about the present condition have been operating for a number of years. Evidence will be submitted to show some of the contributing causes and their effects It was shown in case I. C. C. 3400 that the advanced wage movement culminating in 1910 would increase the wage payments of the railroads in this territory approximately $34,000,000 per annum. The Commission, in its report, expressed the opinion that in view of the large recent increases, it seemed fair to assume that wages would not much increase in the immediate future. Evidence to be submitted, however, will show that subsequent to the general increase in 1910, a similar movement was inaugurated in 1912, and increases already gained by this last movement—largely as a result of mediation and arbitration proceedings—have greatly augmented the wage payments of these same carriers.

Increasing Wages.

"The award just recently announced by the arbitrators in the matter of the application for increase in wages by the conductors and trainmen in Eastern territory, it is estimated, will give approximately $6,000,000 increased wages annually to the conductors and trainmen employed by the railroads affected, all of which are in Official Classification territory. The effect of this increase is not shown in any of the other figures which I am using at the present time.

"A full statement, showing the general wage increases made during the three-year period, and the procedure under which they were obtained will be presented.

"The total wage payment of the Baltimore and Ohio System has been increased by an amount in excess of $4,000,000 per annum, comparing the fiscal year 1913 with the fiscal year 1910, due to increased rates of pay and changes in working conditions. Approximately one half of this amount, or $2,000,000, is due to advances gained by the movement begun in 1912, and subsequent to the increases considered by the Commission in the 1910 investigation. This indicates in a general way what has also taken place with each of the other companies. It should be borne in mind that the wages paid on the several roads interested in this proceeding are very nearly on the same basis, and with substantially the same working conditions.

"Since 1910 there has been an increase in the cost of materials, due in part to increased use and higher standards, and in part to increased prices of certain materials entering largely into the cost of operation, such as fuel and track ties. The advance in price of these two items alone in the case of the Baltimore and Ohio System served to increase the expenses of that company in 1913 more than half a million dollars above what they would have been had prices remained as in 1910.

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Increasing Taxes.

"The amount paid for taxes by the companies, parties to this proceeding, has shown constant increases during the whole ten-year period, and particularly during the last three years. The increase payment in 1913 over 1903 was $28,720,000 and the increase incident to the last three years was $11,579,000. In the case of the three systems selected by the Commission as typical, the amount of money actually paid as taxes during the year 1913 was $31,216,000, being $7,854,000 more than was paid in 1910.

"Legislation, both state and federal, enacted during the last ten years, has brought steadily increasing burdens upon the carriers. It is not proposed to question the merits of any of the legislation referred to in this connection. For the present purpose, it is sufficient to say that the effect upon cost of operation has been and will be the same, regardless of the merit of the measure. Among the measures which have affected cost of operation, I may mention: Employers' liability and compensation acts, full crew bills, so-called semi-monthly pay laws, safety appliance and standardization of equipment acts, and acts requiring the elimination of grade crossings, etc. The effect of the so-called full crew laws alone has been to increase the expenses of these carriers more than $4,000,000 per annum.

"The public demands to-day a higher standard of service than ever before, and while it may be that the wishes of the public in this particular have not been fully realized, none the less, much has been done in that direction, all of which is reflected in the cost of operation.

"One other very important influence upon the expense of railroad operations, when considered in a broad sense, is the higher rate of interest which the companies have been obliged to pay in recent years for new money raised for improvement purposes. It is believed that in the case of the carriers particularly the cost of new capital has been made higher than it otherwise would have been, by the constantly narrowing margin between income and outgo, as it is upon this margin chiefly that the railroads in this territory must rely as the basis for raising additional capital.

Railroads Feel High Cost of Living.

"In short, the railroads have felt the burden of the increased cost of living, like all other enterprises or individuals, but unlike all others have not been permitted so far to raise their prices or adjust their charges in recognition of that burden.

"Further, the rates which were in effect in 1910 have not in the aggregate been maintained—that is to say, while certain increases have been made during the period in mind, decreases have also come about, so that the general basis of rates has been lowered, to some extent by orders of the regulating commissions, and perhaps to an equal if not greater extent by commercial conditions or influences beyond the power of the carriers to resist. The net result of this movement is indicated in the statement that if the same rates and classifications which were in effect in 1910 had remained in effect in 1913, the freight earnings of the Baltimore and Ohio System, in the year last mentioned, would have been over $900,000 greater than they actually were, and the net income would have shown the same increase. It should be understood that this tendency will continue to lower the general level of the rate structure for some time to come, and it should be taken into account when deciding upon any fair basis of rates for the future.

Other Nations Raising Freight Rates.

"In addition to the actual reduction in rates, above referred to, the continuous decline in the value, that is to say the purchasing power of money for a number of years past, has had the effect of diminishing still further the burden of the rate to the shipper, while at the same time increasing the burden of the carriers. This influence, reflected in the higher cost of operations, has been worldwide, and has been recognized by rate advances recently made by railroads in England, Italy, Switzerland, Belgium, Denmark, Russia, Austria, Hungary and other countries.

"Having set forth the results of the operation of these carriers, to show that the revenue received upon the existing basis of rates is inadequate, and having pointed out some of the causes which have served to bring about this condition, we come now to a consideration of what general course the carriers may pursue to meet the situation.

"If the situation is as I have shown, it is clear that the remedy must come from such changes, or such line of action as will serve to increase net earnings, and this result might be brought about by one of three methods or by a combination of some or all of them. A large reduction in cost of operation—other conditions remaining as at present—would produce larger net earnings. A large increase in gross earnings, if the additional business could be handled with the present facilities and at present operating ratios, would also result in a larger net, and it is obvious that an increase in freight charges, other conditions remaining as at present, would bring about the same result.

"I do not believe it will be possible to obtain the necessary relief either by reducing wages already in effect, or by making any very considerable reduction in the number of men employed; nor do I believe it will be possible to effect economies in operation of sufficient magnitude to have any saving effect upon the situation. Undoubtedly further economies will be brought about, but it is altogether likely that in the future, as in the past, they will be more than offset by increased taxes, by the effect of further legislation, which is almost certain to come about, and by other unavoidable increases in expenses.

Operating Economies.

"It appears from the tables submitted that coincident with increased property investment during the past three years, practically all of the railroads in this proceeding have largely increased the average tractive power of their locomotives and the carrying capacity of their cars, and have also made substantial increases in their train load, all of which has tended to more economiacl operation. Speaking more specifically, the Baltimore and Ohio Company, having made exceptionally large capital expenditures during the period last mentioned, was enabled to effect such increase in

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its freight train load as to result in a saving in the fiscal year 1913 when compared with 1910 of over 9,000,00 freight train miles, which, at an estimated cost of fifty cents per train mile, accomplished a saving in transportation costs of approximately $4,500,000 per annum. This large saving, however, was more than offset by increases in other expenses, due to causes which I have already mentioned. I feel confident that the relief which is necessary if these carriers are to meet the standard suggested by the Commission in its report I. C. C. 3400 is not to be found in more efficient operation.

To Raise Rates Only Alternative.

"We next come to the question of large increase in gross earnings. Under certain conditions it might properly be expected that larger gross earnings would give increased net, but it so happens that the railroads involved in this proceeding are located in that part of the United States where commercial and industrial development has been most intense, and it will be shown that in order to increase the gross earnings of these particular companies to any great extent at the existing rates, it would be necessary for them to handle a volume of business much beyond their present carrying capacity. It would, therefore, be necessary to obtain and spend a large amount of new capital for increased facilities before gross earnings could be greatly augmented, and, as has already been shown, new capital invested in such facilities during the last three years has generally failed to earn any return whatever upon the investment. For this reason I do not think we can safely look for relief in the one direction of increased gross earnings, and this brings us to the third remaining method suggested—that is, increased charges, or increased rates and fares.

"Inasmuch as the passenger fares charged by these several companies are generally the result of legislative enactments, and the mail pay and express rates are also beyond the control of the railroads, it will be seen at once that no immediate relief and perhaps no very considerable relief at any time, can be obtained in these directions, and we are consequently forced to consider an advance of freight rates as the one available source of increased earnings. When this same question was before the Commission in case I. C. C. 3400, it was strongly urged by shippers who opposed the increase at that time, that, if it should be shown that the carriers did need increased revenue, and if it should also appear that such increased revenue ought to be obtained by increased freight rates, such advance should not be obtained as was then proposed, by a very considerable advance of some of the rates and no advance of others. It was pointed out that the rate structure, such as it was at that time, was the result of a long period of competition, plus the influence of many years of state and federal regulation, and that commercial and industrial conditions generally had grown up in harmony with the existing structure, and it was urged that the relation of rates between different places and between themselves ought not to be violently or unnecessarily disturbed. The force of this argument has been recognized by the carriers, and in the present instance, while it is proposed to secure the necessary increased revenue by an advance of freight rates, it is also proposed that it should be obtained by an increase generally of five per cent, using minima of five cents per ton and of one quarter of a cent per hundredweight, preserving so far as possible existing competitive adjustments as between localities. This method takes full cognizance of the claim previously made by the shippers that the existing rate structure should not be unnecessarily disturbed so far as relation between rates is concerned.

"The amount of advance, or the percentage of increase now proposed is, in the opinion of those who are parties to this movement, too small to properly meet the exigencies of the case. It was felt, when the matter was first discussed, and that feeling has been strengthened with the passage of time, that a 10 per cent increase of freight rates was necessary and should be requested at the present time, and while all felt that 10 per cent was not higher than the conditions justify, the lesser advance of five per cent was finally determined upon, because it was recognized that the whole rate situation was a matter of delicate relationship, and the individual carriers were naturally solicitous that nothing should be done to disturb the free and well-established movement of traffic. An increase of five per cent, it was thought, would not be large enough to affect seriously, if at all, commercial adjustments, and the increased net which would be gained by such an advance, while not of itself equal to the necessities of the case, would in any event be of assistance, and most important of all, the general increase of rates would serve to direct attention to the relationship which does and must exist between railroad charges and the total cost of operation.

"It was urged in the previous hearing that the carriers at that time were unable to show by actual test that the rates in effect were insufficient, and that they failed to show the necessity for increased revenue. We believe that in the present case, the evidence, showing the need of additional revenue, is ample. It was suggested also that even if additional revenue were necessary at that time, the plan proposed was not the right one by which to obtain it. The carriers accept that point of view, and now propose that the increased revenue be obtained by an advance of a small percentage of all rates in the territory affected. It is believed that the plan now submited is the fairest and best one possible under all the circumstances.

"In conclusion: I have shown that tendencies, which have been operating over a period of at least ten years, have resulted in such diminishing net returns that it has gradually come about that money invested in these railroads, because of the low average rates prevailing in so-called Official Classification territory, and for other reasons, does not earn the same return as money invested in other enterprises of similar kind or character As a matter of fact, money so invested during the last three years, taken as a whole, has earned no return whatever. In view of all this, those responsible for the management of these properties would not be justified in continuing large expenditures of new capital for additional facilities and equipment, even if such capital were available at reasonable rates of interest.

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$200,000,000 Capital Invested Each Year.

"I have also shown that the railroads in Official Classification territory have increased their property investment for new tracks, stations, locomotives, freight and passenger cars, and for other similar purposes at the rate of approximately $200,000,000 per annum during the whole of the last ten-year period, and it is certain that the continued annual expenditure of a sum even greater than that will be necessary for similar purposes, if the carrying capacity of the railroads in this territory is to keep pace with the normal growth of commerce.

"The immediate and all-important question is, How shall these railroads obtain the new capital necessary if they are to provide the needed facilities and furnish the high-class service which the public interest demands, and to which the public is properly entitled? The answer, we think, is to be found in the following words which appear in the report of this Commission, from which I have already quoted:

We should allow such rates which will yield to this capital as large a return as it could have obtained from other investment of the same grade. If rates formerly in effect have become insufficient, then higher rates should be permitted. Commerce and industry cannot afford to wait on transportation facilities.

At the conclusion of Mr. Willard's address, Mr. Delano made the following statement on behalf of the lines in the Central Freight Association territory:

Statement of F. A. Delano.

"In the 1910 case the Commission reiterated a principle it had frequently applied in previous cases involving the reasonableness of competitive rates, which is tersely stated in the sentence taken from the Spokane case.

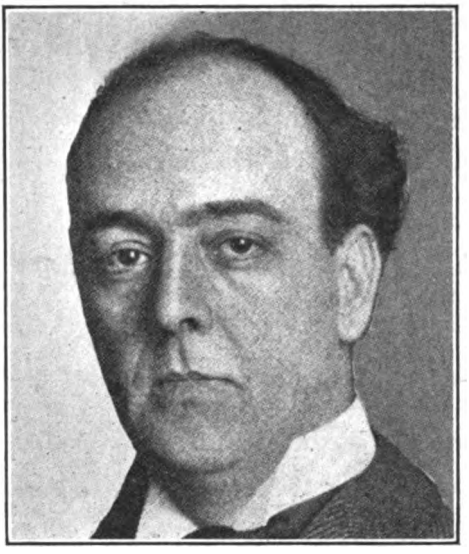
"In applying this principle in the 1910 case, the Commission held that the Pennsylvania, New York Central and Baltimore and Ohio systems were, for the purpose of measuring the reasonableness of rates, fairly typical of the railroads in Official Classification territory.

"Mr. Willard has indicated in his statement that the lines generally will offer evidence which will show that they are now entitled, on the authority of that ruling, to increase their rate.

"That ruling was no doubt justified by the evidence submitted in that case, but we, who represent the Central Freight Association lines, do not believe the evidence in that case fully developed the whole railroad stiuation in the territory.

"We concur in all that Mr. Willard has said and believe the evidence will show that the systems I have mentioned considered alone are entitled to an increase in rates, but we are not satisfied with the ruling of the Commission that those systems are typical of the lines in the territory and believe that if the ruling should be affirmed as a fixed precedent for future guidance, its application will cause irreparable injury, not only to them, but also to the people they serve, and we have accordingly determined to bring to the attention of the Commission in the present case evidence which we believe will justify a reconsideration of the subject; and I have been delegated to briefly outline that evidence.

"We will participate with the trunk lines in offering testimony on the general features of the case and will confine our separate presentation to



Frederic A. Delano.
President, Wabash Railroad.

the submission of additional evidence which, we believe, will show the ruling of the Commission, that the systems I have mentioned are fairly typical of the whole situation in the territory, ought not to become a fixed precedent, and that the whole situation' in Central Freight Association territory is the fair measure of the reasonableness of the rates in that territory, and calls for a very substantial increase in rates.

Official Classification Territory.

"Official Classification territory embraces three distinct and independent railroad territories and rate zones, which we will endeavor to show were created in a natural way in the evolution and development of the railroad business by economic conditions peculiar to each, but not common to two of them.

New England Territory.

"First, we have the New England territory, which embraces the New England States, and contains an area of approximately 64,000 square miles, inhabited by approximately eleven million people, or 174 inhabitants to the square mile, and traversed by 8,071 miles of railway lines, which touch an average population, including New York City, of 1,389 per mile of railroad. The population of that territory is dense, and, in the main, assembled in large industrial centers, the rural population of the New England States being only 17 per cent of the whole population.

That territory does not produce fuel or other raw material, except granite, marble and lumber—and those do not comprise a substantial tonnage—and, while the traffic is dense, it consists largely of merchandise, manufactures and miscellaneous. For instance, approximately 45 per cent of the tonnage of the two principal railroads in that territory, during the year 1912, consisted of that class of traffic.

"The hauls in that territory are short. Little

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traffic passes through, except imports and exports, and the bulk of the traffic originating or destined beyond that territory is received from or delivered at its west boundary to lines running west and south, while the water-borne tonnage is largely hauled but short distances to inland towns.

"These conditions, and the isolated location of that territory along the Atlantic seaboard, water competition and numerous other economic influences peculiar to it, which the evidence will bring out more in detail, have created a railroad territory and fabric of rates and traffic conditions peculiar to it and independent of the West and South.

Trunk Line Territory.

"We have next the Trunk Line territory, which embraces the area west of the Hudson River and Atlantic seaboard, north of the Potomac River and east of what is known as the 'Western Termini'—a line extending from Buffalo through Pittsburgh to the Ohio River. This territory embraces an area of 112,000 square miles, and has a population of twenty-one million, or 207 inhabitants to the square mile, and is traversed by 23,777 miles of railway lines, which touch an average population of 889 per mile of railroad.

"As in the New England territory, the population in the Trunk Line territory is found largely in its great cities—the rural population of the states included in the territory being only 30 per cent of the whole.

"The area and population of this territory are greater than the area and population of the New England territory, but the area per mile of railroad is only about one half, which indicates that the former is more amply supplied with railroad transportation facilities than the latter. While the population per mile of railroad is greater in New England territory than in Trunk Line territory, the tonnage in the latter, per mile of railroad, is approximately twice the tonnage in the former. The character of the traffic is likewise substantially different in the two territories. For instance, the combined tonnage of products of mines carried by the Pennsylvania Railroad proper, the New York Central proper, and the Baltimore and Ohio System in 1912 was approximately ten times the same class of tonnage carried by the two principal railroads of New England. That class of tonnage comprised 66 per cent of the total tonnage of the Pennsylvania and the Baltimore and Ohio, but only 30 per cent of the total tonnage of the two New England roads.

"The evidence will show that Trunk Line territory comprises relatively the largest population per square mile, the greatest industrial activity and the densest traffic of any similar area in the country. It embraces the great manufacturing centers of New York, New Jersey and Pennsylvania, and the Pittsburgh district—the greatest tonnage center in the world.

"In the early history of railroad building in that territory, the railroads were built westward from New York and other Atlantic seaboard cities on the south, and either teminated at Buffalo, on the lakes, or at Ohio River cities. The rates were made applicable to these lines as originally constructed, and the character of the traffic, physical surroundings and other economic influences, which we will point out more in detail in the evidence, built up and have preserved to this day a railroad territory and a fabric of rates and traffic conditions peculiar to it and independent of and distinct from the territory east, west and south of it.

Central Freight Association Territory.

"The remainder of Official Classification territory—the vast area extending from Trunk Line territory to the Mississippi River and the lakes—comprises what is known as Central Freight Association territory.

"The portion of that territory in the United States contains an area of approximately 186,000 square miles, inhabited by about nineteen millions of people, or 122 inhabitants to the square mile, as compared with 207 in Trunk Line territory and 174 in New England territory, and is traversed by 35,849 miles of railroad, which touch an average population of 506 per mile of railroad, as compared with 889 in Trunk Line territory and 1,389 in New England territory.

"It will be noted that, while this territory contains two million less population than Trunk Line territory, its area is 74,000 square miles greater, and is traversed by 12,072 more miles of railroad, and while it contains about eight million more inhabitants than New England territory, it comprises more than three times the area and is traversed by 27,778 more miles of railroad.

"The population of the principal states in Central Freight Association territory is about equally divided between the cities and the rural sections, the percentage of rural population being 46 per cent of the whole. But it does not follow that it has too many railroads or too much mileage, because as we have seen the population is thinly spread over 186,000 square miles, as compared with a two-million greater population in Trunk Line territory assembled on 112,000 square miles, and only eight millions less population in New England territory assembled on 64,000 square miles.

"The traffic in this territory is diversified and very general in character, and is substantially different in many respects from the traffic in the other territories.

Special Nature of Middle West Railroads.

"This territory was created largely by physical conditions and natural development and growth of population. Its numerous lakes and rivers, some of which form its boundaries, attracted to their borders the early settlements and cities, and in time came Chicago and St. Louis, its two chief centers of population. The territory is comparatively level, which facilitated railroad building, and as population increased, railroads were constructed in all directions, the objective points being, naturally, lake and river cities.

"It is a well-known fact that in the development of that territory water competition has always been an important factor, and that the railroads have promoted the growth of population and industrial development by low rates. Again, railroad building at times has been in excess of the growth of the country, and caused abnormal competition, resulting in lower rates.

"At the time the Government entered upon the regulation of rates, those prevailing in Central Freight Association territory, as a body, were comparatively the lowest rates prevailing in any

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section of the country, and in recent years they have been still further reduced—and especially passenger fares, which have been reduced from three to two cents per mile, or 33 1-3 per cent—in all the states in that territory.

"The influences I have mentioned, which we will show in detail in the evidence, have resulted in the bankruptcy of a substantial portion of the railroad mileage in the territory and in depleting the earnings and debilitating the credit of the remaining lines to an extent which, unless relieved by prompt and substantial advances of rates, will naturally result in impeding the commerce and transportation of that section of the country.

"On the evidence, we will urge that, owing to the different conditions existing in these three component parts of Official Classification territory, lines traversing two of these sections ought not to be regarded as typical of the whole situation in the territory or in the component parts. Undoubtedly a great many important considerations are common to all the lines in the three component parts, and accordingly the showing of the Pennsylvania, Baltimore and Ohio and New York Central Systems will be of great value to the Commission. We do not mean to disparage, or in any way discredit, the showing of those systems, but merely contend that their showing is not conclusive or typical of the entire situation.

Grouping of Lines in C. F. A. Territory.

"We believe it will be pertinent to show the conditions prevailing in Central Freight Association territory, and will, therefore, offer in evidence, among other things, statements of the mileage, earnings and results of operation of the lines located therein, with a view of indicating the 'whole situation' in that territory.

"There are, in the territory, 35,849 miles of railroad (exclusive of the mileage of switching and terminal companies) owned by 93 companies.

"We have omitted switching and terminal companies because they perform a special service on an arbitrary basis, generally fixed on a per-car rate.

"The mileage, however, includes the mileage in C. F. A territory of the Mobile and Ohio; St. Louis, Iron Mountain and Southern; Louisville and Nashville; Southern Railway; St. Louis Southwestern; Chicago, Burlington and Quincy, and Norfolk and Western—1,892 miles, or 5.3 per cent of the total—but we exclude that mileage from our figures, because it is only 7 per cent of the mileage of those companies, and the results of their operation cannot be segregated. As 93 per cent of the mileage of these companies is in higher rate zones, it is obvious that the operations of these companies as a whole would be immaterial.

"This leaves 33,957 miles of railroad, or 94.7 per cent of the total, in the territory.

"In presenting our figures we will be obliged to add to that mileage the results of the operation of 264 miles of the Chicago and Alton, 2,628 miles of the Illinois Central, and 859 miles of the Wabash. The principal operation of these three companies is in the territory, the 3,751 miles outside being west of the Mississippi River or south of the Ohio River, in higher rate zones, and we include them because the results of operation of the mileage in the territory cannot be segregated.

"We will also include 3,401 miles of the . Baltimore and Ohio and Erie, which are lo- ated in Trunk Line territory, because the oper- ation of this mileage cannot be segregated f- om their lines in the territory.

Special Groupings of C. F. A. Railroads.

"Our figures will, therefore, embrace the results of operation of 41,109 miles of railroad, and we will arrange them in four groups:

"*Group One*—embraces the 41,109 miles of railroad I have mentioned, except 6,443 miles of Erie Lines east of Marion, Ohio, and the Baltimore and Ohio System, and 2,729 miles—the aggregate mileage of 46 short railroads in the territory which, together, earned less than eight million dollars in 1910.

"*Group Two*—embraces the Erie Lines east of Marion, Ohio, and the Baltimore and Ohio System, aggregating 6,443 miles, 3,401 of which are located in Trunk Line territory. This mileage is grouped together because the results of operation of the mileage in C. F. A. territory cannot be segregated.

"*Group Three*—embraces 28 of the 38 roads in Group One, with an aggregate mileage of 23,167 miles, which includes 19,416 miles, or 51½ per cent of the entire mileage in the territory, and embraces such important lines as the Big Four System; the Vandalia; the Chicago and Eastern Illinois; New Nickel Plate; Grand Trunk Western; Grand Rapids and Indiana; Pere Marquette; Cincinnati, Hamilton and Dayton; Illinois Central; Chicago and Alton, and Wabash.

"*Group Four*—embraces 46 companies with an aggregate mileage of 2,729 miles, or 7½ per cent of the total mileage in the territory, which, together, in 1910 earned less than eight million dollars. These roads are important factors in the development and commerce of the respective communities they serve, but, as a rule, they are in great financial distress, and, being short lines, we thought it natural to group them together.

Lines Representing the Whole Situation.

"We believe that Group Three embraces lines which are fairly representative of the whole railroad situation in the territory, and for that reason we will refer to it in some detail.

"We have omitted from this group the main line connections of the Trunk Line Systems—the Lake Shore, the Michigan Central, the Pennsylvania Company and the Panhandle—although the figures will show that their prosperity has been substantially impaired during the last few years by a constantly increasing ratio of expense to earnings.

"The fact, however, that this mileage as a whole was constructed at a very low capital charge and forms integral parts of the best and strongest railway systems of the country, to say nothing of the credit and business they have enjoyed from their affiliations and the returns on their outside investments, place them in a class by themselves. These facts (which will be shown more in detail in the evidence) will conclusively prove that, while those lines, no doubt, need an increase in rates, they do not belong in the group of railroads which fairly represents the railroads in the territory.

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"We have also excluded from Group Three the Pittsburgh and Lake Erie, Bessemer and Lake Erie, Hocking Valley, Kanawha and Michigan, Toledo and Ohio Central and Wheeling and Lake Erie. These roads are located in a comparatively small area between the Great Lakes and the iron furnaces and coal mines of Ohio and their traffic is not of a general nature, but substantially confined to the products of mines; their tonnage of these products during 1912 being 78.6 per cent of their entire tonnage, but the exceptional feature of their situation lies not only in the volume of this mineral traffic, but in the fact that by reason of hauling iron ore in one direction and coal in the reverse way, they have a balanced traffic, which produces an unusually favorable operating condition.

"While these lines are within the boundaries of the territory, they do not enter into the general railroad situation and cannot be included in a group of roads fairly representative of all the railroads in the territory.

"We have also excluded from Group Three the 46 short lines whose aggregate earnings for 1910 were less than eight million dollars, because, as we have said, those lines are short, their earnings are small, and they are, as a rule, in financial distress and ought not to be included in a group of roads representative of the railroads in the territory.

"We have included in Group Three 28 companies, with an aggregate mileage of 23,167 miles, which traverse all parts of the territory and participate in the general traffic of that section of the country.

"We believe a mere glance at the map of this large mileage (23,167 miles) will indicate that it is fairly representative of the territory. In any event, we may be assured that if this mileage is not influential in determining the reasonableness of rates, the prosperity, commerce and development of the whole territory will be placed in jeopardy.

Salient Facts from the Evidence.

"On the evidence we will present, in detail, our contentions, but my present purpose will be served by merely calling your attention to a few salient facts.

"This great network of railroads covering the entire territory, during the year ending June 30, 1910, earned 239 million dollars, and during the year ending June 30, 1913, 275 million dollars, or a gross increase of about 36 million dollars; but in the former year the operating expenses and taxes were 182 million dollars, and in the latter year 227 million dollars, or an increase in expenses of about 45 million dollars, resulting in a decrease in net revenues, after payment of taxes of over nine million dollars, and in net corporate revenue of more than 16 million dollars.

"As stated in other words, the ratio of operating expenses and taxes to earnings, during the same period, increased from 76.3 per cent to 82.8 per cent.

"These same roads, during the year ending June 30, 1908, (which will be remembered as a panic year), earned 212 million dollars, and during the year ending June 30, 1913, 275 million, or an increase of 63 million; but, during the year ending June 30, 1908, the operating expenses and taxes were 165 million, and the year ending June 30, 1913, 227 million—an increase of about 62 million

Net Corporate Income Decreasing.

"Now, despite the fact that during that same period more than 175 million dollars were put into additions and betterments, the net, after deducting operating expenses and taxes, showed an increase of only $800,000, while the net corporate income actually decreased about eight million dollars.

"As we have shown, this mileage comprises 51.2 per cent of the entire mileage in the territory, and if we add the mileage of the 46 short railroads, we will have 59.1 per cent of the entire mileage of the territory, all of which is in deplorable financial condition.

"While, as we have said, the evidence will show the lines embraced in Group Three are fairly representative of the whole situation in the territory, the lines embraced in Group One show a result almost equally deplorable, especially in the last few years.

"Group One, as we have seen, embraces 78.6 per cent of the entire mileage in the territory, including all the strong lines, and besides, 3,751 miles outside of the territory in higher rate zones; and excludes only the 46 short lines which are in financial straits, and the Erie east of Marion, Ohio, and the Baltimore and Ohio System, and the short projections of southern lines into the territory.

"Group One, in the fiscal year 1910, earned $457,000,000, and in the fiscal year 1913, $533,000,000, or showed an increase of $76,000,000, but operating expenses and taxes during the former year were $329,000,000, and during the latter year, $417,000,000, or an increase in expenses and taxes of $88,000,000, resulting in a decrease in net revenue, after deducting operating expenses and taxes, of $12,000,000, and a decrease in net corporate income of $17,500,000.

"These large decreases resulted in the face of the investment of vast sums of new money for additions and betterments—in other words, notwithstanding the investment of this new capital, the ratio of operating expenses to gross revenue increased from 72 per cent in 1910 to 78.2 per cent in 1913.

Latest Figures Less Encouraging.

"The figures for the first two months of the present fiscal year are still less encouraging; for instance, the net revenue, after deducting operating expenses and taxes of the lines in Group One for the two months mentioned, decreased about $4,500,000, as compared with the same two months last year, while the decrease of the lines in Group Three was about $2,000,000 as compared with the same months last year.

"The evidence will show that the lines in Central Freight Association territory are confronted with the expenditure in the near future of millions of dollars in the separation of grades in various cities, on which they will receive no adequate return, and many of the lines have not the credit to raise this money. This circumstance, in view of the present conditions of the roads, presents a serious situation which calls for prompt relief.

"It will be obvious from the evidence that a five per cent increase in rates will not be adequate to

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meet the demands of the territory. As I have said, the rates in that territory, both freight and passenger, are the lowest rates prevailing in the United States, and the interests of the people of that rapidly growing and developing section of the country, to say nothing of the carriers, require, in the near future, a readjustment of the rates, both freight and passenger, to a basis which will enable that territory to have good railroads and the people to have efficient and adequate service, and to progress measurably with the other sections of the country."

Annual Meeting and Banquet of Railway Business Association

THE annual banquet of the Railway Business Association held in New York at the Waldorf-Astoria Hotel on the evening of December 11, 1913, proved to be the most notable and significant in the history of that organization. The diners were addressed by Howard Elliott, chairman of the New Haven System, and by Governor Cox, of Ohio, and the remarkable demonstrations which greeted the references made to the necessity for a liberal railway policy, left no doubts in the minds of those present of the favorable attitude of big business towards a readjustment in transportation charges by which the carriers will be permitted to sufficiently increase their incomes to properly meet the increasing demands made upon them. George A. Post, the able president of the Association, acted as toastmaster, and it is hardly necessary to state that he filled this exacting position to the complete satisfaction of all present.

Chairman Elliott's address was closely followed and frequently punctured with applause. He spoke in part as follows:

ADDRESS BY HOWARD ELLIOTT.

"National need of terminal and other railway facilities having been thoroughly impressed upon the public mind, shippers and editors generally convinced that larger net railway returns should be permitted, what are the reasons and perplexities which prevent the people from giving effect to a policy that will cure the trouble, making it unanimous? Even if there is only a vigorous minority opposed to such policy candid consideration of their objections is due them.

"It is claimed that the management of some roads has not been honest—that insiders have profited when they should not. The morals of all kinds of business have improved year by year and things have been done in railroad and other business in the development of the country that were probably not right then—and that certainly are frowned upon now by law and public opinion. Such things ought never to have been done. Owners of railways should root out dishonesty if it exists, and if they will not, public authority will do it. But is there anything in the situation that warrants calling a halt on the development of a continent? Every time a clergyman, a doctor, a senator, or a cashier is punished, are we forthwith to abolish all clergymen, all doctors, all senators, and all cashiers, while we unfrock that particular clergyman, convict that particular doctor of malpractice, expel that particular senator, or jail that particular cashier?

"It is said that some railways are over-capitalized. Whether they are or not, and certainly American roads have led the world in refraining from it, no more capitalization ought to be created than is necessary in order to serve the public. If too much was issued by some roads in the past, this is to be regretted, but no workable method has been suggested by which securities issued legally and bought in good faith can be taken from their owners without failures and receiverships that harm many more people than the owners of the securities. As for the future, every railway of importance runs through one or more states which regulate security issues. And apart from that those responsible for railway management realize, as they never did before, the absolute necessity of sound business principles in issuing securities, law or no law. The present problem is not to restrict the issues of securities but to find people willing to buy them.

"One hears that if securities were sold over the counter the bankers' commission would be saved. Perhaps some day, if confidence can be restored, part of such commissions might be saved, but a railroad must have financial experts, as well as engineering experts, and pay a fair price for services rendered. If the commissions can be saved they ought to be. But not even city, state and federal governments, whose credit is based on the taxing power, have been able at all times to float even moderately large popular loans without the aid of bankers, so it would seem as if it was to the interest of the people to be patient with a railway which has practically no control over the price of labor needed to produce that transportation.

"Others object because they say the new revenue would go to increase dividends. So some of it would and must. The dividend which a stockholder receives is not all that he would like or that his managers want to pay, but is an amount needed to induce him and others to buy more stock or bonds when an enlarged plant is necessary in order to meet the desires and absolute necessities of the public.

"It is said that the increased income needed could be had by economies. It is true that economies have been introduced, and there is room for more of them. Railroad managers as a whole are pushing hard every day to improve men, methods and facilities. Many economies, however, can only be adopted by throwing away old appliances and buying new ones, which is the case in mills and factories as well as in railroads. And if the railroads have no money with which to get the new tools they must do the best they can with the old ones. No effort in this direction should be neglected, and no other industry is, or in the nature of things can be, so thoroughly organized nation-wide as the railways to co-operate in studying, experimenting and standardizing progress. But in view of the wonderful savings already ac-

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complished, both major and minor, in the past few years, and the larger percentages of gross earnings absorbed by expenses and taxes, it is doubtful if the people should depend on such measures to offset the apparently irresistible rise in wages and in the price of materials, the higher cost of capital, and the demands for more elaborate facilities and luxurious service.

"Are any of these obstacles sufficiently important to delay such revision of rate schedules as will meet this anomalous situation of increasing gross earnings, but declining net earnings, and still more rapidly declining net corporate income after payment of fixed charges?

"The railway managers of the country want to know where to improve. They welcome just criticism based on real knowledge of all the facts. It is their purpose to profit by it. To serve the public adequately, on the other hand, is also their purpose, and it is their duty to seek diligently from the appropriate authorities the authority and help necessary, if the railway is to do what the people want and must have if the country is to grow.

"For the New England lines that I represent, I ask the patient good-will of her people and of the nation while this peculiar and difficult problem is being solved, and I ask that all believe in our intention and desire to conform in good faith to the laws, state and national, when it is clear just what the laws are, and that there is no conflict between State and Nation, and in our aim to serve the public interest to the extent of our ability—moral, mental, physical and financial. The tendency of rate regulation is toward a mileage basis, which must be modified to meet conditions such as exist in the United States—where many commodities must be moved long distances. This entails readjustment for many communities built up on well established rate relations. New England, owing to her geographical situation, would be crippled by the sudden and absolute application of a mileage basis.

"These six states have one fourteenth of the national population, but they have one twelfth of the national wealth. They consume one eighth of the materials of manufacture, and they have one sixth of the bank deposits. New England appeals confidently to business men in other parts of the country to seek growth through the advantages they have rather than by attempting to force a readjustment which will involve serious consequences to New England and to the whole country, which benefits by New England's thrifty accumulation of capital, by her contributions to progress, and by her very large purchases of the products of other regions.

Address of Governor Cox.

Governor Cox's address, while defending government regulation and criticising some of the past tendencies of railway management, was, nevertheless, a strong plea for a liberal railway policy and practically an endorsement of the railroads' contention that the income derived from present rates is not sufficient to properly meet the constantly increasing demands of commerce. He spoke in part as follows:

"Something must be done with the railroad question. If you lay your finger on the pulse of the railroad organism you have unmistakable symptoms of the country's prosperity or adversity. When Ohio was stricken last spring with the great flood catastrophe we lay stunned and helpless until railroad commiunication was established. None will deny how important it is to conserve this utility, and by this is meant protection from unwise legislation and a guarantee of measurable safety to the individuals and institutions that have hazarded their capital.

"Now, what is the condition of the railroads? Tonnage continues stupendous. Terminals in every city are insufficient. There is congestion. Service is beginning to show the lack of old time regularity. Rolling stock is inadequate. The development of the country makes a call on the railroads for extensions and equipment which finds an enforced feeble response. They could advantageously to the public use hundreds of millions of dollars right now.

"The railroads cannot borrow the money to provide for the situation. Short time notes have been given to meet current and emergency expenses, and if the banks were to demand payment we would be in the throes of a well organized panic. Investors have been driven to other fields, notwithstanding no business is based on a more stable utility than that of the railroads. The amount of securities listed on the New York Stock Exchange by steam railroads in 1912 was the smallest in ten years.

"You hear in many quarters the statement that adverse legislation and the policy of regulation are the largest contributing factors. I do not subscribe to this view. Sane regulation will become the ultimate salvation of the business. One cannot resist the thought, when he surveys the abuses of overcapitalization, finanical adventure and personal exploitation, that the mistake in regulation has been that it did not come soon enough. No one will seek to condone the practice of milking railroads in order that executive officers and directors might be illegally and immorally given vast fortunes through the artful and insidious method of contracting with themselves for construction work. No man in conscience will avow the propriety of a wild cat policy in the issuance of securities. No community in America will produce the man who will attempt to justify the practices which have shaken the confidence of the conservative thought of New England.

"We might just as well recognize, however, that a puritanical severity is not going to do any good. The thing to do is to restore the patient and then prescribe and enforce a diet and behavior which will prevent recurrent illness. Each age brings its changes in accepted fundamentals of justice. Our fathers subscribed to many things in full conscience that are shocking to present day ideals. We must therefore be consistent and recognize this as fundamentally just—that the transgression of yesterday cannot and must not be measured with the ethical yardstick of to-day. It is more creditable to adhere to this doctrine than to frame a policy of confiscating the holdings of present owners who are in no way to blame for the abuse of those who sold them.

"You cannot buy land for terminals; lay tracks of steel to accommodate the growing traffic of the nation; build spurs to mines, cities or agricultural centers, without an increased cost in investment. You can't sell the securities unless the public is assured of a return on the investment. Every phase of the fiscal situation of the railroads suggests that something be done not only to es-

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tablish in the minds of the investing public some fixed idea of the inherent value of the railroads, but to frame a national policy, securely supported by an intelligent public opinion, for the conservation of the transportation utility. I introduce the suggestion that ultimate relief will never come until the Interstate Commerce Commission passes upon the issuance of securities. I spent a few days in Washington last week and heard everywhere the statement that the railroads would be given at once, without a word, the desired raise in rate if the Government were assured that the increased revenue would be properly applied. Ask the Government to step in as a representative alike of the public, the railroads and the investor, issue securities of smaller denominations and in ten years the great transportation lines will in fact belong to the people, and you will have public ownership rather than Government ownership.

"Government, from the standpoint of morals and expediency, must permit the roads living rates. If it develops that while the gross receipts have increased, the net receipts are considerably diminished by the liberal policy of society, then relief ought to be granted, whether it be one per cent, five per cent, or ten per cent, that is needed. There is nothing more harmful than the tendency to hold a fetish. There is no more offensive species of standpatism than to impose a rate one year and continue it without term.

"Let us all dedicate ourselves to the solution of this great problem of transportation—recognizing that it concerns every community and every household. In the forum of public opinion every issue has been settled and ultimately settled right in this our glorious country. If progress means anything it is that prejudice cannot last and that fair dealing will endure."

Annual Meeting.

The annual meeting, which preceded the banquet, developed an optimism as to the future of American railways, notwithstanding the present serious situation and the many grave problems yet to be solved.

"Current expenses," says the annual report of the General Executive Committee, "tends to dispel the most serious ground for doubt of success for public regulation of privately owned railways. The fear has been that no tribunal of political origin would survive if it permitted an important general increase in transportation charges, because, it was predicted, the shipping public would always resist and when defeated would retaliate by attacks upon the Commission. Instead of this we actually see organized shippers sending resolutions to the Commission declaring not only that they will cheerfully accept an advance if found necessary, but that they will not be represented in opposition at the hearings."

The report continues:

"The public does not and should not relinquish its purpose of scrutinizing the practices of railway corporations and dealing with these where necessary. But it has been made manifest that when national prosperity requires a strengthening of railway revenue public opinion will discountenance attempts to postpone action on the pretext that one or another specific theory of conduct must first be established and enforced. Railway managers are endeavoring as energetically as business men or men in public life to improve standards both of efficiency and of propriety.

"A number of members of the Interstate Commerce Commission and of the state commissions after long service but still in vigorous health have recently retired. Not even an enlightened public opinion will insure the success of regulation unless men who have acquired experience and knowledge are retained. Security of tenure minimizes the waste of time and danger of mistakes involved in breaking in new commissioners. It gives the older commissioners an independence and serenity which promote efficiency and quality of work and it enables the appointing power to command the services of men who would not accept if they believed the position would be used as a political reward.

"Per mile of line 'operating income' in 1913 was only 4.8 per cent above that in 1910, and in July, August and September of the new fiscal year, only 4 per cent above 1910. Fixed charges are still to be deducted. These in 1912 reached 46.8 per cent of 'operating income.' The wage award of six millions a year to the conductors and trainmen will further depress net earnings of the Eastern roads. Those lines in 1911, 1912 and 1913 spent more than 650 million of new capital for improvements and yet in 1913 with gross earnings 186 millions larger than in 1910 their operating income was over 16 millions less. There can be little doubt that at the present time the railways of the country with an investment in plant greatly exceeding that in 1910 are realizing actually less money for improvements, dividends and surplus than they were when the rate advance was denied them.

"What were the railways obliged to leave undone in order to produce even the income they have? In the calendar year 1907 they built 284,188 freight cars; in 1912, only 152,429. The passenger car record was 5,457 in 1907; production in 1912, only 3,060. In 1907 the locomotives built reached 7,362; in 1912 only 4,915. Volume of orders for rolling stock in 1913 has been less than in 1912. Main track built in 1907 was 5,212 miles; in 1912, but 2,997. Yard track (fiscal years) built in 1907 was 3,988 miles; in 1911 (latest figures), 3,392 miles. Terminal facilities, therefore, of which yard track is an important part, have not developed in proportion to the demands which competent authorities have predicted.

"Numerous bills are before Congress which if passed would require enormous expenditures by the railways, notably the steel car bills. Of passenger train cars placed in service in 1909, 51.4 per cent were wooden. The railways without any law have adopted steel. They ordered in 1913 no wooden passenger cars whatever. Congress has no occasion for severity or haste. Some of the bills fix brief periods within which all wooden passenger train cars must be displaced by steel. This should be looked into. It would take ten years with existing car building facilities to substitute steel for wooden, and private capital can not be compelled by law to invest in enlargement of the car building plant. Such substitution would cost more than 600 million dollars and would divert great sums from other purposes more important to safety than steel cars. Many of the wooden passenger train cars which would be scrapped are comparatively new and are reasonably safe for the usual conditions of traffic. The type of steel car is a subject of difference among experts. After an accident a steel car is a means of safety.

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Precautions to prevent accidents—sound rails, sound ties, good ballast, ample signalling, discipline most important of all—must also be provided. The steel car question will settle down gradually to its proper proportions. We urge Congress to act if at all by avoiding minute specifications and authorizing the Interstate Commerce Commission to deal with the matter in its discretion as experience and study dictate.

"Increased expenditures were compelled in 1913 by full crew laws passed in Arkansas, California, Missouri, Nevada, New Jersey, New York and Ohio; by safety appliance laws passed in California, Colorado, Florida, Kansas, Michigan, Missouri, Nevada, Ohio and Texas; by hours of labor laws passed in California, Missouri, Nevada, New York and Ohio and by grade crossing laws passed in Arkansas, Minnesota, Missouri and New Jersey. The forty state legislatures in session in 1913 enacted 343 laws specifically affecting steam railways as against 276 passed by forty legislatures in 1911. The addition to operating expenses will aggregate very large sums. Only one state, New Hampshire, adopted a law permitting the railways an advance in freight rates prohibited under the previous statute.

"No systematic method has yet been put in effect for co-ordinating Congress, the legislature or the wage arbitration board which compels expenditures with the Commission which regulates rates. We urge the need of mechanism for holding down the obligatory outlays to fit the railway pocketbook.

"Our Association participated in the successful effort to have Congress amend in 1913 the federal railway labor arbitration law. The changes made tend to assure the acceptance of arbitration by both sides and are fairer to both sides in that two neutral arbitrators instead of one must be convinced. Many believe that the danger of strikes should be guarded against by the further step of prohibiting, as in Canada, a strike pending an official investigation and publication of findings. The policy of urging this provision upon Congress and the state legislatures should be carefully considered."

At the morning session, E. B. Leigh, delivered an address under the title of: "Railway Purchases Measure General Business Prosperity." This address led the Association to adopt the following resolution:

"We believe that if the Interstate Commerce Commission finds as a result of its inquiry that the railways need more revenue to enable them to provide service adequate to the growing needs of the public and will grant an increase in transportation rates, the effect will be to promote an immediate improvement in all lines of business."

Other resolutions adopted commend the cooperative spirit of shippers, the press and the Interstate Commerce Commission in considering the rate advance; favor the establishment by Congress of facilities for legislative reference and bill drafting; urge the retention in office of Interstate Commerce Commissioners and state railroad commissioners who by length of service have acquired knowledge and experience and are otherwise fit for the duties of such positions; voting Yes on referendum of the Chamber of Commerce of the United States which if adopted would approve in general while recommending some improvements in the plan submitted by the Secretary of Commerce to the President for the development of foreign and domestic commerce: and declaring with regard to compulsory steel car legislation that "since the most desirable type of steel car is still seriously debated by engineers, since there is a possibility of strengthening wooden cars with steel, and since many wooden cars good for much longer service are reasonably safe for many trains, thorough investigation by men trained in such matters should be the basis of whatever regulation the government undertakes," and "if Congress is to deal with the subject, that body should avoid doing so in detail by statute, and should delegate instead authority to the Interstate Commerce Commission to formulate regulations."

Officers were re-elected as follows:

President, George A. Post, New York.

Treasurer, Charles A. Moore, New York.

Assistant Treasurer, M. S. Clayton, New York.

Vice-Presidents: A. M. Kittridge, Dayton, O.; W. E. Clow, Chicago; G. W. Simmons, St. Louis; S. P. Bush, Columbus, O.; Alba B. Johnson, Philadelphia; H. G. Prout, Pittsburgh, Pa.; W. G. Pearce, New York.

Eight appointive members of the General Executive Committee whose terms expire this year will be named later.

President Ripley's Second Reply to Clifford Thorne

ATTENTION was called in the November issue of the RAILWAY WORLD to a statement made by Clifford Thorne, chairman of the Railroad Commission of Iowa, before the recent convention of the National Association of Railroad Commissioners to the effect that under government ownership, a saving of $464,000,000 could be made in the annual return paid to railway capital.

The attention of President E. P. Ripley, of the Atchison, Topeka and Santa Fe Railway, was called to Mr. Thorne's statement and in a letter to that worthy gentleman he pointed out, among other things, that Mr. Thorne had used misleading figures regarding the interest and dividends now paid annually to railways which had resulted in an error of $211,000,000 a year. Continuing, Mr. Ripley said:

"You stated that the (net) capitalization of the railways on June 30, 1912, was $15,286,101,947; and you calculated, on the basis of the market prices of railway securities in October, 1913, that the railways could be acquired by the government for $13,969,173,383. Even assuming that the conclusion drawn by you from the current market prices was correct—and I do not believe this to be the case—you chose as the basis of your calculations the quotations in a month when railway securities reached one of the lowest levels to which they have fallen in years. It would be just as fair to make a similar calculation based on the quotations in some month when the prices of railway securities were at their maximum, which, of course, would yield a very different result. United States Senator Albert E. Cummins, of your own state, a few years ago estimated that a valuation of all

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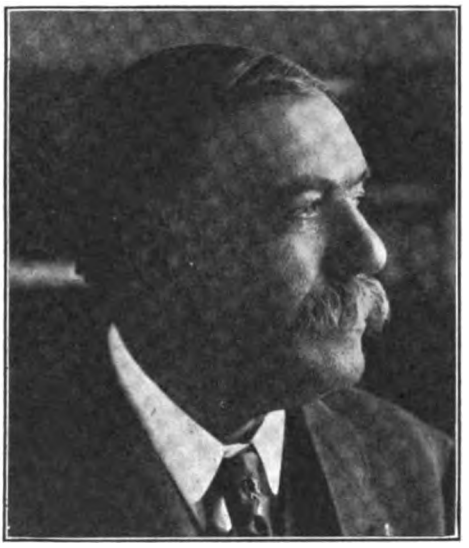

E. P. RIPLEY.
President of the Atchison System.

the railways of the country would amount to $20,000,000,000; and his figure probably is a much better index of what it would cost the government to acquire the railways than is yours. You estimate that if the government acquired the railways it would have to pay only 3 per cent interest on the bonds issued by it. If you have studied the present prices of bonds of the United States Government and of the securities issued by the governments of other countries you are aware that no government could to-day issue a large amount of 3 per cent bonds at par, and that any government that could issue them at less than 4 per cent would be fortunate. If the United States Government should buy the railways at a cost of $20,000,000,000 and should have to pay 3½ per cent interest on the money its total interest would amount to $700,000,000 a year, which exceeds the total interest and dividends now paid by the railways.

"In conclusion, I call your attention to the fact that you make no allowance for the great increase in railway operating expenses that almost certainly would result under government ownership, thereby more than wiping out any conceivable saving that could be made in the cost of capital. The last large railway acquired by the government of a democratic country is the Western Railway of France; and in the four years 1908 to 1912, inclusive, its gross receipts increased only 12 per cent, while its operating expenses increased over 50 per cent, in consequence of which its net earnings declined almost 70 per cent. I leave you to calculate what would be the consequence to the American people if government ownership should be adopted in this country, and government management should produce such results as it has produced in France."

Mr. Thorne answered Mr. Ripley's reply in a letter, in which he admitted the erroneous use of figures regarding interest and dividends, but sought by a different method of calculating to show that the saving which he had estimated could be made was not excessive. This drew from Mr. Ripley, under date of November 15, another letter, the text of which shows the basis on which Mr. Thorne made his second calculation regarding the possible savings, and also replies to Mr. Thorne's argument. Mr. Ripley's second letter to Mr. Thorne is as follows:

"I have your letter of November 11, replying to mine of recent date in which I criticized your attempts to show that under government ownership of railways in this country over $464,000,000 of the return now paid annually to railway capital could be saved. Before replying to some of the statements made in your letter permit me to make clear my own position regarding the question of government ownership in the United States.

"I do not oppose this policy as a railway officer. The government could not acquire the railways without paying just compensation for them. The roads are now being so regulated that the security owners are not receiving an adequate return, and if they could get their money out they could invest it where it would earn a larger return. Therefore, government ownership might be a blessing to the owners of railway securities. While I do not oppose government ownership as a railway officer, I do oppose it as a citizen, because I believe that under our form of government and political conditions it would be the greatest calamity that could possibly befall the American people. You say in your letter, 'Within the next five or ten years you will see government ownership will be one of the great political issues of the day in the United States, and when that issue arises in all its vast importance the real problem will be whether the operation of the railroads can be divorced from politics.' But, upon what conceivable ground can anyone assume that politics would be kept out of the management of state railways in the country? It is not now kept out of the management of the state railways of any country, with the possible exceptions of Prussia and Japan. Furthermore, politics is not now kept out of anything done by our own governments. Since we cannot keep politics out of our river and harbor improvements, or out of our appropriations

CLIFFORD THORNE.
Chairman of the Railroad Commission of Iowa.

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for public buildings, or even out of our legislation regarding the location and maintenance of army posts and naval stations, how can it be rationally assumed that we could keep it out of a state railway system employing 1,700,000 citizens and voters? And if we did not keep politics out operating expenses would increase by the hundreds of millions annually.

"In my first letter I called your attention to the fact that by using misleading figures in your address to the National Association of Railway Commissioners at Washington in regard to the total annual interest and dividends paid by the railways of this country you had fallen into an error of over $211,000,000. You now admit the justice of this criticism. Referring to the figures used by you and my criticism of them, you say, 'I believe your point is correct that such totals include duplications which should be deducted because of payments to railroads by other railroads resulting from mutual stock and bond ownerships.' Having conceded this, you attempt to show by a wholly different method of calculating that a saving equal to that originally estimated by you could be made, and 'challenge' me to show wherein you may be in error. I have read with mixed feelings of amusement and astonishment the figures given and conclusions drawn in this, your second utterance on the subject. I am unable to decide in my own mind whether the nonsense you write is due to the fact that you are ignorant and are yourself deceived, or to the fact that you are trying to mislead others. In either event it is inconceivable how a man who has succeeded in getting the public confidence to such an extent as to have become chairman of the railroad commission of a great state can be capable of using railway statistics as you did in your address to the National Association of Railway Commissioners and again in your letter to me. You enjoy the unique distinction of being the only railroad commissioner I ever heard of who did not know the difference between an *addition to railway income* and a *deduction from it*. In your address at Washington you gave the total interest and dividends paid by the railways in 1912 as $883,000,000, and in my letter to you I called your attention to the fact that the total net operating revenue of the railways in that year was less than $868,000,000, and that, after paying taxes, they had left only $755,809,486 net operating income. In your reply you say, 'You exclude $255,611,495, representing "other income," as well as $123,898,207 income from non-operating roads. A substantial portion, but not all, of these figures should be legitimately included.' Now, of the $124,000,000 which you assume was *paid by the non-operating roads to the operating roads*, and therefore should be *added* to net operating income, no less than $117,400,000 was *paid by the operating roads to the non-operating roads*, and was, therefore, a *deduction* from the increase of the operating roads! As to the $255,600,000 'other income,' you apparently assume that this was derived from outside investments, and was, therefore, additional to the revenue derived by the railways from their own operations. Here again, you are completely in error. This 'other income' is made up almost entirely of payments of an intercorporate operating or financial character made by the railways to each other. For example, it consists chiefly of the very duplication of interest and dividend payments which you yourself now admit should be eliminated in treating the railways as a single system. The complete figures of the Interstate Commerce Commission for 1912 are not yet out, but those for 1911 are, and by turning to the Commission's income account of all the railways considered as a single system, on page 53 of its Statistics for 1911, you can ascertain by a simple calculation that the total amount of money which the railways had available in that year for interest, dividends, improvements, etc., after making all proper allowances for and deductions from both their operating income and their 'other income,' was $785,297,599, which is about $350,000,000 per annum less than the sum arrived at by adding together the net operating income, the 'other income' and the income of non-operating roads, as you, by implication, suggest should be done to ascertain the total net income of the railways. The mistake made by you in your Washington address as to the total interest and dividends paid by the railways was only $211,000,000. The mistake now made by you regarding their total income amounts to $350,000,000. I grow curious to know how much your mistakes would ultimately increase to if this correspondence should be long continued?

"Having conceded that the estimate originally made by you as to the annual saving that could be made in return to railway capital under government ownership (namely, $464,000,000) must be reduced by at least $211,000,000, you add that even after this deduction the saving which could be made on the basis of your calculations as to what the government would have to pay for the railways and the rate of interest which it would have to pay on the bonds which it would issue for this purpose would be $250,000,000 annually. But, as I clearly indicated in my first letter to you, both your estimate as to what the government probably would have to pay to the railways and your estimate as to the rate of interest which it would have to pay on the debt incurred by it, are too low. Since your premises regarding these matters are baseless, it follows that the conclusions which you persist in drawing from them are absurd.

"Continuing, you call attention to the fact that after paying operating expenses, taxes, interest, dividends, etc., in 1911, the railways had left $161,800,000, which they used for additions and betterments, for the construction of new lines or extensons, carried to their general balance sheet, etc. You add that this would go to the public under government ownership.' But if under government ownership the government should take this money and use it for purpses other than those to which it is now devoted, it would not make the improvements, extensions and so on which are now made from it. In that case, either these improvements, etc., would not be made at all, or they would be made from the sale of additional securities. In the former case needed improvements would be wanting. In the latter case capitalization would be increased faster than now, more money would have to be earned to pay a return on it, and in the long run the public would be worse off than it is under the policy now followed by the railways. The railways of the United States have followed the policy of making substantial expenditures from earnings for improvements from year to year, very little of which has been capitalized, and most of which has gone for improvements of great benefit to the public, but which earns nothing for the railroads—such as fine pas-

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senger stations, track elevation, elimination of grade crossings, etc., and on June 30, 1911, according to the statistics of the Interstate Commerce Commission, they had outstanding a capitalization of only $63,944 per mile on which to earn a return. The British roads have followed the policy of making all additions and improvements from new capital, and on the same date they had a capitalization of over $275,000 per mile on which to earn a return. The American policy is obviously the less costly in the long run, and, therefore, the saving of $162,000,000 in expenditures for improvements, etc., which you estimate could be made, like the saving in the cost of capital which you estimate could be made, turns out to be purely imaginary.

"You attempt to strengthen your argument for government ownership by saying, 'Remember, the large majority of the civilized countries on the globe—three fourths of them—already own most of their railroads.' You seem to know as little about the railways of the world as about those of your own country. The latest complete compilation of the railway mileage of the world was made by the *Archiv fur Eisenbahnwesen*, the official publication of the Prussian State Railways, as of January 1, 1910; and the figures given by it in its issue for May and June, 1912, showed that the total length of the railways of the world was 639,621 miles, and that of this governments owned only 186,068 miles or 29 per cent, and private companies, 453,554, or 71 per cent. Even excluding the large privately-owned mileage in the United States, the mileage owned by private companies in the rest of the world was 212,497, or 26,429 miles more than the total government-owned mileage. Europe and North America are hardly the least civilized parts of the world; and on these two continents the mileage owned by governments was only 120,040 miles, while that owned by private companies was 380,531 miles, or over three times as great. It is true that most of the mileage of Germany is owned by the states, but all of that of England is owned by private companies. Most of the mileage of Austria-Hungary is owned by the state, but 82 per cent of that of France is owned by private companies. While most of the mileage of Italy, Switzerland, Norway and Australia is owned by the government most of the mileage of Sweden, Portugal, Canada and Argentina, is owned by private companies. Contrary to your apparent belief, and probably to the belief of most persons, private ownership is still decidedly the preponderant policy of the world."

Valuation Not a Remedy for the Rate Question

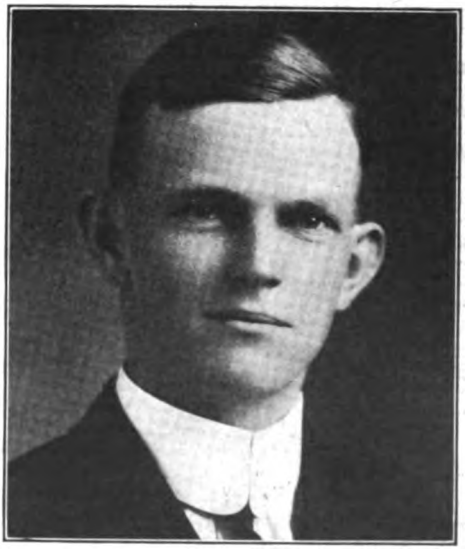
By FRANCIS DEAN SCHNACKE,
COLUMBIA UNIVERSITY, NEW YORK CITY.

IN view of the fact that Congress has directed the Interstate Commerce Commission to make a valuation of each American railway engaged in interstate commerce, it is well to consider what the utility of such valuations will be for rate regulation, after they have been ascertained

The principal argument is that in this way the regulation of rates will be much simplified; that those, and only those, rates will be reasonable and just which allow the railway in question to earn a "fair return" on the "fair value" of its property. Nearly all economists and students of transportation agree that the general rate of return which railways, as a whole, receive, is one element to be considered in the determination of the reasonableness of rates, but a great difference of opinion exists as to what is the proper method of computing the so-called "fair value" on which the rate of return is based, and also as to what weight should be given the rate of return as compared with other considerations.

Volumes have been written on what elements enter into the determination of value. The Act of Congress authorizing the Commission to make these valuations, requires that there shall be ascertained the original cost of each road, its cost of reproduction new, its cost of reproduction less depreciation, and any other elements that may enter into its value, but leaves it to the discretion of the Commission to decide what these other elements, if any, are, and to decide how the full valuation shall be determined from the information thus obtained.

Even a hasty discussion of what constitutes a "fair value" of a railway would occupy a great many printed pages, but it may be said in passing



FRANCIS D. SCHNACKE.

that neither original cost, cost of reproduction new, nor cost of reproduction less depreciation, of the physical properties of a railway is the proper criterion by which to determine its fair value. A valuation so made might either greatly exceed or fall short of its true value. Not only those elements, but its strategic location, its connections and traffic agreements, its traffic density, the skill and ability with which it is operated and man-

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aged, as indicated by its net earnings, should also be given due consideration. In short the value that a railway possesses as a going concern is its true value. It would be absurd to say that a railway constructed through a mountainous district, and yielding small dividends is worth more than, or as much as, one with a relatively large earning capacity, situated in a prairie section, merely because the original cost or replacement cost of the former is $75,000 per mile and that of the latter but half that amount. Rolling stock and roadbed costs as much new, or to reproduce, when destined to lie idle half the time, as when used to maximum capacity, but it cannot be said that the value of these properties is the same in the two cases. The Supreme Court of the United States has tersely stated the proper standard upon which to base railway value in the following words: "But the value of the property results from the use to which it is put and varies with the profitableness of that use, present and prospective, actual and anticipated. There is no pecuniary value outside of that which results from such use." *

Even though these non-physical as well as the physical elements be included in the determination of the "fair value" of a railway, of what practical use, for rate regulation, can such valuation be after once ascertained? The highest authorities on transportation subjects agree that the proper test of the reasonableness of the rates of a carrier is not the rate of return on the value of its property. No such rule of thumb is applicable. If it were possible for railways to adjust their rates so as to yield earnings sufficient to meet their fixed charges or to pay dividends on watered stock, receiverships would be unknown. Chairman Knapp, of the Interstate Commerce Commission, testified in 1899, and a host of other eminent authorities on transportation have testified, before and since, that they have never seen a single instance where individual or collective rates have depended upon, or even been influenced by the returns made on capital. Railways earning no dividends at all must meet the rates of their prosperous competitors. Rates to and from non-competitive, as well as competitive points, must be fixed so that the traffic will freely move, irrespective of whether any net profit results therefrom. The courts and the Interstate Commerce Commission do not apply the "fair return" test in rate regulation. In a recent case the Commission held that the mere fact that a common carrier was earning as much as twenty per cent on the original cost of its propery did not justify a reduction in its rates.† Canada Southern Railway Company vs. International Bridge Company is an English case to the same effect.‡

The only true test of the reasonableness of railway rates is the effect which they have on traffic. A reasonable rate on a particular commodity is the charge which the shipper or consumer of that article can afford to pay for the service, and which still encourages the development and growth of the traffic in that commodity. This is entirely irrespective of whether the railway in question is earning ten per cent dividends or nothing at all. If a particular rate is so high that it has a depressing influence on commerce it should be reduced regardless of the railway's valuation or earnings. The Supreme Court of the United States has held that such a reduction is legal, even though if similarly low rates were applied on all freight the road would not pay operating expenses.§

The popular conception of freight rates is that they are a burden on commerce, and the lower they can be reduced the more trade is stimulated. The fallacy lies in the failure to see the identity of interest between the railways and traffic. As a matter of fact commerce is as much benefitted by the greatest possible development of railway communication as the railways are by the increase of traffic to its fullest extent. Each plays for the other the role of the goose that lays the golden eggs. Under freedom of action, the operation of the natural and selfish forces of each stimulates and strengthens the other.

Present railway tariffs are the result of nearly a century of the adaptation of transportation charges to the requirements of trade, with the one end in view of increasing tonnage and profits. Rates fixed by any test other than that of commercial considerations never can and never will automatically adjust themselves to the needs of trade, and the result will be detrimental to both commerce and the railways. Rate regulation then should not be governed by any rule of thumb such as "fair return on fair value." It should be confined to the elimination of discrimination and dishonesty. The administration of the railways should be left alone.

There is, however, one great benefit that will surely be derived from the valuations which the Interstate Commerce Commission will make, and that is that the result will make it evident to the public that American railways, as a whole, are not over-capitalized, and are earning but small dividends. It may thus be instrumental in checking much of the punitive and unnecessary restrictions upon railway operations.

*C. C. C. & St. L. Ry. Co. vs. Backus, 154 U. S. 439, 445.

†Board of Railroad Commissioners of Iowa vs. Illinois Central R. R. Co., (1911) 20 I. C. C. Rep. 181.

‡(1883) 8 App. Cases 723.

§Minneapolis & St. Louis R. R. Co. vs. Minnesota, 186 U. S. 257, 267.

A Woman Tower Operator.

DOWN in southwest Louisiana, at a little railway station ninety-eight miles from the Gulf of Mexico, where the Jasper & Eastern branch of the Santa Fe crosses the Kansas City Southern, stands a rather lonely towerhouse. A woman operator, who is always at her post, handles the levers at night, and she has an exceptionally good record.

Mrs. Millie Diefendorf, signal plant operator at Ludington, La., went to Louisiana several years ago with her husband, who also was a signal plant operator and maintainer, and Mrs. Diefendorf took up the work that she might be with him.

After having studied and fitted herself for the position, application for a position was made. It was with difficulty it was secured, for it was generally supposed a woman was not capable of assuming the responsibility of such a position. However, she was given a temporary position as a trial. That was six years ago, and she has been night operator continuously since that time.

There is not a towerman (or towerwoman) on the system who has a record that will surpass hers. During this period she has not unnecessarily stopped a train or caused a delay of any kind.

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The Railway as a Public Servant*

By JULIUS KRUTTSCHNITT,
CHAIRMAN, EXECUTIVE COMMITTEE, SOUTHERN PACIFIC RAILWAY.

THE railway is a public servant. This fact is now as clearly and unreservedly recognized by those who own and manage railways as by those who use their services and regulate them. In a different, but no less real, sense, Congress, legislatures, the Interstate Commerce Commission and state railroad commissions are public servants. The duty of the railway as a public servant is to render good service to the public and charge only reasonable rates for it. The public has given the lawmakers, commissions and some other public officials authority to see that the railways perform this duty

It is evident that if the public is to get satisfactory results from its servant, the railway, it must take care that it be so treated that it will be kept in vigorous health. The railway cannot maintain vigorous health if it is not allowed sufficient earnings to sustain it in good physical and financial condition, or if burdens are imposed on it which are too heavy for it to bear. The immediate determination of what earnings it shall be permitted to receive and what burdens it shall have put on it is in the hands of the other servants of the public mentioned, chiefly the commissions and legislatures. If the railway is guilty of acts of omission or commission which are inconsistent with its public duty, these other servants of the public should adequately restrain and punish it. But when the railway is doing its best to perform its duty it is obviously contrary to the interests of the public for it to be subjected to unnecessary restraints and penalties.

Yet this is what is occurring at the present time. In a recent editorial, the New York *Times* said. "The railways no longer are subject to the reproach of resisting legislation or minimizing its effects and results. Their haughty spirits being subdued, is there not reason and room for hoping that the regulators themselves may realize the responsibilities thrust upon them? Ultimately, the regulators are the people. * * *" Loyal and efficient service to their common master requires that the relations between the railways and the regulating authorities shall be co-operative and governed by a spirit of justice. In no other way is it possible for each to render the efficient service which alone justifies its existence. Why should the master with supreme control over all suffer one servant to be injured and embarrassed by the others in performing his duties?

It is sometimes said that the railway may properly be regulated in this way or that way in which other concerns may not be regulated because it is engaged in a public service. But does not the fact that it is engaged in a public service argue most forcibly for the greatest justice and considerateness in dealing with it? It has dedicated its property to a public use. Is not an obligation incurred by the master to shield from injustice and oppression the servant who has thus dedicated his resources to his service? Is it not even more important to the public that the concern which does serve it shall be considerately and fairly dealt with than that the concern which does not serve it shall be?

JULIUS KRUTTSCHNITT.

When Congress wastes millions of dollars and state legislatures squander millions more, there is hardly a passing comment. The money is easily obtained. It is raised by taxation; and when expenditures increase, whether for good reasons or not, taxes can be and are equally increased. The railroads, equally servants of the public, cannot raise money with such ease and facility. They can get it only by rendering the services of freight and passenger transportation. The national and state governments can make their incomes cover their expenditures because they control both the income and the expenditures. The railways must keep their expenditures within their incomes, because while they have some control over their expenditures they have almost no control over their incomes, their passenger and freight rates being fixed by public authorities. And, while the managements of the railways can to some extent control their expenditures, they cannot by any means completely control them. In consequence, in spite of all the managements have been able to do, operating expenses have been steadily increasing. This has been largely due to advances in wages, practically all of which have been awarded by arbitration boards. Most of these arbitration boards have been organized and have acted under the authority of a federal law, the Erdman Act.

In addition, the lawmakers and commissions have been imposing numerous requirements on the railways which have further increased their ex-

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penses, and often in ways that have actually reduced the railroad servant's efficiency. Within our knowledge no accidents to railway trains in this country have been proven to be due to their being insufficiently manned. American railways have spent some $250,000,000 in equipping their locomotives and cars with automatic couplers and air brakes, which not only increase safety, but relieve brakemen of the danger and labor of coupling and setting brakes by hand. For some years the railroads enjoyed a return on this very large expenditure, because by reducing the number of trainmen that had to be employed and the total amount of wages that had to be paid it tended to reduce operating expenses and increase net earnings.

But in the past few years state after state has permitted its servants, the legislatures, to decree that additional men shall be employed by the railways in excess of their necessities, whether viewed from the standpoint of economical operation or of public safety. As a result of this legislation millions of dollars have been wasted in hiring useless labor—money which might otherwise have been so expended as to replace the cost of railway service or improve its quality. The real purpose of this legislation has been to increase the number of men that railways must employ. The legislatures have, in effect, robbed the railways and given the spoil to unnecessary employes in order that the members of the legislatures might get the votes of railway labor. In allowing one servant to be thus robbed of the fruits of his thrift by a fellow servant, has not the master been clearly at fault? Has he not disregarded not only the rights of the servant who has been robbed but his own interests?

Again, laws have been passed to compel the railways to use special patented headlights on their locomotives. Acetylene headlights of high efficiency and closely approaching the electric headlight in brilliancy and power were already in use. The railways using these efficient and expensive devices were forced to discard them and incur heavy additional outlay for specialties promoted by inventors and private corporations whose claims were strongly advocated by lobbies of promoters and labor representatives whose disinterestedness had not always been above suspicion. Can the master escape responsibility for the waste thus forced on one of his servants by a fellow servant? What would the master think of a law that required him to replace the acetylene lights that he uses in some of his lighthouses with electric lights that served their purpose no better but cost ten times as much? What would the individual citizens of this country who own automobiles think if similar legislation were passed regarding automobile headlights?

The federal government and state after state have passed laws limiting the hours of service and efficiency of railway employes. Since the master permits his other servants to thus impose burdens on the railways, should he not also cause some consideration to be given in the regulation of the rates of the railways to both the necessary and unnecessray burdens imposed on them? The Postoffice Department recently has found itself in a sorry fix similar to that in which the railways find themselves. The efficiency of its employes has been reduced. In consequence, its expenses have been increased. It has therefore demanded and received a large appropriation to restore the efficiency of the mail service. The railroad is a fellow servant of the Postoffice Department. It, however, cannot thus get an emergency appropriation, but must continue to pinch a narrowly limited income in order to meet the increased expense caused by an enforvced reduction in the length of the working days of its employes. Scores of laws have been passed that increase the outgo of the railways regardless of their income and it often happens that a railway traversing two or more states is beset with conflicting laws in these various states to which it must adjust itself as best it can. Scripture teaches us that no man can serve two masters. How, then, can the railways be reasonably expected to serve forty-nine?

The effect of this unjust treatment of one servant of the public by his fellow servants, which is tolerated and condoned by their common master, is strikingly illustrated by the fact that between 1907 and 1911 the railways of the United States put $2,044,714,000 of new capital into their properties on which they have received no return. Incredible as it may seem, the total return in 1907 on $13,000,000,000 of invested capital was $8,787,000 more than the return in 1911 on $15,000,000,000 of invested capital.

The master and his servants, the regulating authorities, impose many requirements on the railway in the nominal or real interest of safety. The total number of "passengers" killed, including "persons carried under agreement," in train accidents in the year ending June 3, 1912, was 139. In "other than train accidents," the number of passengers killed was 179. Nearly all of these deaths were due to unrestrained personal carelessness; and this, in turn, was due to the master's neglect to require those who use the railway's service to exercise common sense to protect themselves against the necessary hazards of railway operation.

The total fatalities on the railways of the United States in the same year in connection with train operation were 10,195. Of these 5,434, or 53 per cent of the total, occurred to trespassers. These fatalities to trespassers could be prevented by the passage and enforcement of proper laws; and only thus could they be prevented. In other words, the master, through failure to prescribe and enforce preventive measures, was responsible for fifteen easily avoidable deaths every day during the year. In 1907 a train could run 2,900,000 miles before a passenger in the servant railway's care was killed in a train accident. In 1911 it could run 9,100,000 miles, or over three times as far. That is, travel on trains was over three times as safe for passengers in 1911 as in 1907. On the other hand, during the same period there was but a small reduction in the number of fatalities to trespassers in proportion to the number of train miles run. In 1907 one trespasser under the master's care was killed to every 210,000 train miles run, and in 1912 one was killed to every 240,000 train miles run. During this period the servant was diligent and careful, and the master was grossly negligent.

The railway cannot render the service its master expects and demands without sufficient means. There is not a railway manager in the country to-day who is not fearful that under the press of increasing demands the transportation system of the country will in a few years break down unless the railways are allowed to earn larger funds

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wherewith to build it up. They must have more double tracks, terminals and yards; new and larger stations; they must eliminate grade crossings and make other improvements, to handle the increasing density of traffic resulting from the growth of population and wealth. There are vast sections of the country, especially in the West, where more railroads are needed, and they cannot be built unless the railways can raise new capital. Now, there never was such a world-wide demand for capital as there is at this time. And what are the facts as to the ability of the railways of the United States to get capital? There never was a time when railroad investments were more unattractive. The interest rates that the railways must pay are very high and they are steadily increasing.

People invest money in order to make money; and they are skeptical as to whether they can make money by investing in concerns that are dealt with stringently and unfairly. Railroad securities must be made more attractive to invite investment, and in order that they may be made more attractive the roads must be allowed earnings that will enable them to meet the increasing capital charges. People cannot be induced or forced to put money into enterprises that are discouraged and deadend by the arm of tne law. Nor is it sufficient to induce investment that earnings shall be barely sufficient to pay fixed charges and modest dividends. In order that its securities may be salable, a concern must be able to build up a surplus as a defense against financial troubles. This practice is considered praiseworthy and a mark of prudent and efficient management when followed by other concerns, but the policy of the government in this country is to forbid the railroads from following the practice, and if, perchance, one does accumulate a surplus it at once becomes a target for attack.

There was a time when the people took little interest in the details of railway operation. During that period there were many abuses, but the development of railways went forward at a rate which has never been equalled in any other country. It was justifiable and necessary that the public should assert itself to stop the abuses. But it is not necessary in order to stop misconduct on the part of railway managements to destroy the efficiency of the railways and sap their financial strength. The public should understand that in exercising the power, it cannot shirk the responsibility, of the master. The welfare and health and strength of the servant must be conserved if he is to render the service which the master expects and needs.

Passenger Conditions and Their Relations to the Public

By GEORGE W. BOYD,
PASSENGER TRAFFIC MANAGER, PENNSYLVANIA RAILROAD.

EDITOR'S NOTE:—The following address by Mr. Boyd was delivered at the 58th Annual Convention of the American Association of General Passenger and Ticket Agents held in Philadelphia, October 14th and 15th. Its direct bearing on the problems which are so seriously disturbing present day railway management makes it of unusual interest.

THE business of transporting passengers by railroad is scarcely eighty years old. The primitive methods of making rates, as well as of handling the passengers, were inherited by the railroads from the stage coach and the canal boat, and it is by no means improbable that the crudity of such a system, coupled with the common prejudice of the people against the newly found means of locomotion, produced the first feeling of antipathy on the part of the public against railroad management. For nearly fifty years what may be termed the creative period of railroad history continued, and during that period the administration of passenger matters, in the absence of system and the lack of concerted action, was in a chaotic condition. The construction of new lines and the extension of those in existence made competition rampant. The struggle for traffic brought out a multitude of abuses in the devious practices resorted to in the control of traffic. The commission system bloomed and flourished. the scalper became an active force for evil, and the rate wars budded and broke out over night. The passenger man's lot was not a happy one. He was a public enemy unless he yielded to popular clamor. He had to keep a sleepless eye on his competitors to protect his traffic, and present a brave front to his own executive su-

GEORGE W. BOYD.

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periors, who in those days had little sympathy with the passenger movement, and rather considered the passenger department in the nature of a disordered appendix.

To continue this savage strife was fatal to all hope of profit, destructive of business integrity, inimical to the rights of shareholders, and was very unbusiness-like. A great light broke upon the passenger situation, and a finer feeling of fair dealing and honest practices was born. The payment of commissions to agents for the control of traffic was discontinued and gradually eliminated from the situation. The law was invoked to drive the scalper from the field, and the fight against this pernicious enemy of honest dealing was relentlessly fought and won in state after state until he was practically driven from the field.

A surer and more equitable basis of rate making, and a firmer stand in their maintenance, followed these reforms as a natural result. Intercourse between passenger men became more candid and sincere, a higher standard of integrity became the ruling spirit in passenger affairs, and the administration of passenger business in all its complex details assumed a place in railroad affairs which not only increased the earning power of passenger transportation, but elevated the passenger branch of the traffic department in importance, dignity and influence. As we look back now on the record of passenger history in the last twenty-five years it seems clear that the leaders of the reform movement in the conduct of passenger business were unconscious forecasters of coming events. They were wisely strengthening their lines and concentrating their forces in preparation for the new conditions which national and state legislation was bound to force upon them.

It counted for nothing that during years of honest and continuing endeavor the passenger officials had striven to so regulate their business as to give the public, without favor or preference, the benefits and advantages of equitable and fair rates and superior passenger service. That old and lingering prejudice against railroad interests had waxed stronger in the public mind and reached a point of such intense and widespread hostility as to demand of the national law makers restrictive and regulative legislation against the railroads. This widespread sentiment took shape and form in the first Interstate Commerce Act, creating the Interstate Commerce Commission, which undertook to regulate the conduct of all railroad business in its relations to the public. On account of the conservative measures which had been put in practice in the ten years preceding the enactment of this law, the majority of the railroads were prepared to adopt its provisions without serious interference to their revenues. The abolition of passes in fact tended to increase them, and the anti-discriminatory features of the bill served to still further strengthen the integrity of the rate situation and uphold the policy of a fair deal to all the people. The significant fact that very few prosecutions have been instituted for the infraction of the national laws against passenger traffic officials, is ample proof that passenger men are law-abiding citizens, and ever ready and anxious to perform the obligations of the railroad to the public to the fullest extent.

In 1906, the Hepburn bill, amending the original Interstate Commerce Act, was passed, and in 1910 the Hepburn bill was further amended to its present form and scope.

The Interstate Commerce Commission, reconstructed under this act, with enlarged powers, has practically taken over the rate-making duty of the railroads. Its powers in this respect are more than regulative,—they are mandatory. Interstate rates are required to be fixed on certain principles prescribed by the law, and the Commission is constantly on the alert to see that the requirements of the law are strictly observed. Rate making therefore has its legal status. It cannot be juggled to the advantage of one line over another. The will of the people, as expressed through their representatives, is paramount. The people have tied up the transportation lines, and forces them to sell their product at a price that the purchaser determines. It is an anomalous situation. Ordinarily the law of supply and demand fixes the price of a commodity, but railroad transportation is sold to the people at what they think the price should be, without regard to the cost of production. The glaring inconsistency and manifest unfairness in this situation, places the transportation lines at the enormous disadvantage of having the price of their product definitely fixed by an overruling power, without any aid or authority from this power to regulate or control the expense of producing it. The law says you shall not charge any more than a fixed maximum rate for transporting passengers, but it does nothing to help you in fixing a reasonable scale of wages for the workmen required to perform the service you must render to the public. As far as established rate regulation is concerned it is therefore a one-sided affair, with all the odds against the railroads. There can be no question of the wisdom of a governmental regulation of passenger rates under wise and well-considered legislation. It undoubtedly helps the railroads to escape those abuses against which they fought for so many years before the law took an active hand in the matter. But the public, for whose benefit all the regulative legislation is designed, fail to appreciate that they have the railroads backed into a corner, hemmed in on the front by the law, and on the flanks by the insistent and extravagant demands of labor.

It should be remembered that national legislation is not the only restrictive force that confronts the railroads in their operation. Every law making body in the country, from the tiny borough council to the halls of Congress, is active in the general movement. Every ruling or enactment of each one of these bodies affects the earning power of the railroad by increasing its expenses. Uncomputed millions of dollars within the last decade have been added to the cost of performing transportation by the innumerable laws imposed upon the railroads by the people. The epidemic of two-cent bills which swept over all the states materially reduced the revenues of many lines unfairly. The full crew bills, which force upon the railroads a large number of useless employes, will swell the wage account by millions, without giving the public any corresponding benefit, and to the actual loss of the operating departments. The restrictive laws affecting the hours of labor, added to the constantly increasing cost of labor, the imposition of much higher taxes, and the proposition of putting the cost of the elimination of grade crossings exclusively on the railroads, is a cumulative drain on their revenues, which will eventually become sharply manifest in the reduction of dividends.

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All these multiplied forms of added expense have a direct bearing on the capacity of the roads for performing adequate passenger service. It follows as a natural consequence that if passenger operation cannot be counted on to supply its proper proportion of revenue on account of the low rates enforced, the high standard of passenger service must be lowered. This would prove a most unfortunate hindrance to railroad progress. For thirty years, even during the period of rate instability, there has been a gradual but uninterrupted improvement in equipment and in the essential features of the passenger service in general. In response to the public demand, high-grade trains, with accommodations not dreamed of a generation ago, have been introduced, multiplied and maintained in the highest state of efficiency. Years ago the appointments and speed of American trains compelled the admiration of the world. At the present time they have reached the climax of superiority. All-steel cars of every class provide not only every requisite of comfort and convenience, but insure the maximum of comfort and safety. The modern locomotive, with its enormous power and possibilities of speed, makes regularity of movement the rule instead of the exception. Terminal stations, notable in architecture, lavish in spaciousness, convenient in accessibility, stand as convincing proof of the purpose of the railroads to give the public the perfection of service in every detail.

The transportation of person and property by railroad is the greatest business in the world. It touches more points of human activity than any other organized business. Its intimate relations with trade, commerce, the household, society in general and the government, make it the one indispensable factor of modern existence. With this vast multiplicity of connections with the vital affairs of life, it is necessary that its administration should demand the keenest tact and the wisest judgment. The record of passenger transportation proves that such characteristics are conspicuous in the administration of passenger affairs on our American railroads. The passenger officials of our railroads, as evidenced by the membership of this body, are able, broad and highminded men, specialists in their profession by education and experience. Keenly alive to the responsibilities imposed upon them by the ethics of business and the requirements of the law, they are fully competent to serve their corporate masters with loyalty, and the public with equity and justice. No passenger man wishes or tries to deprive the public of any of its rights. On the contrary his aim is to interpret the law under which he works as liberally as possible, so that the people may enjoy the benefits of every advantage modern railway management can provide for them. If the public could be convinced that the railroads are striving to give the service it demands, as far as possible within the law, and under the burden of expense imposed by the law, it can hardly be doubted that sentiment in this regard would become more favorable to the corporate interests of the country. The American people in the end are always fair, and if they can be brought to realize that railroad management is honestly endeavoring to fulfill its obligations to the law of the land and at the same time serve the best interests of the people, who are primarily responsible for the laws, they will be less eager for lower passenger fares when demanding improved passenger service. Thousands of these people are investors in railroad securities, and the promptings of their own self-interest must sooner or later influence them to give the railroads a square deal.

I feel assured that this Association is of one mind in its desire to enlighten the public to a proper realization of its responsibility in these matters. Railroads cannot go on forever paying dividends if their earning power, already weakened by low rates, is to be still further eaten into by high wages, high taxes, and the numberless other expenses that a compliance with the existing laws entails.

It is the plain duty of every member of this body to bestir themselves, jointly and individually, to use their best endeavors to educate the public mind to the importance of popular support and encouragement to railroads, in order that the best interests of all concerned may be conserved.

By practice and precept, by speech and by working, they can sow in the public mind the seeds of a better feeling toward railroad management. By a rigid adherence to the legally authorized rates, they can prove to the public that everybody dealing with the railroads is on the same footing, and that no advantage is enjoyed by individual or organization.

By instilling into the minds of all employes the principles of efficiency, and courtesy, and consideration, in all their dealings with the public, they can make a long forward step toward winning and holding the confidence of the people.

With the popular distrust of the corporate interests turned into confidence, the active support of the people will undoubtedly be given to all well-managed railroads throughout the country.

Panama-Pacific Exposition.

RAPID progress continues to be the feature of the work on the Panama-Pacific Exposition. The great exhibit palaces now rapidly rising and the numerous lesser structures of many kinds combine to form an Exposition City of striking effect, in the process of making. Each day reveals progress in its evolution that is little short of amazing, when the vast scope of the undertaking is considered.

More than 6,000 applications for concessions have been received to date by the Division of Concessions and Admissions, and more than 100 have already been granted.

One hundred and seventy-seven congresses and conventions of various organizations have been arranged for the exposition year in San Francisco, and negotiations are in progress with many more organizations in different parts of the world, for some of the congresses will be international, others national and others yet pertaining only to the Pacific Coast of the United States. The organizations that have already agreed to hold congresses and conventions in San Francisco in 1915 include those representing civic, religious, social service, educational, fraternal, business, labor, commercial, horticultural, livestock and other interests.

The most conservative estimates, by careful investigators, place the minimum attendance at the Panama-Pacific International Exposition at 10,000,000, while most of them place the total at figures varying between 12,000,000 and 18,000,000.

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Fire Protection Applied in a Broad Sense to Railroad Properties

By CHARLES N. RAMBO, OF PHILADELPHIA.

EDITOR'S NOTE:—The Railway Fire Protection Association was organized in Chicago on October 7th, and thirty-nine representatives were enrolled as members. While this is a good beginning it is hoped that all the principal railroads will become interested and identified with this Association in order that every effort may be made to bring about a reduction in the fire waste on railway property. The following paper by Mr. Rambo, read before the organization meeting, gives an excellent idea of the importance of this subject and the great amount of money which can be saved as the result of the proper development of a concerted movement of this character.

THE subject of fire waste in this country is receiving such careful consideration and attention on the part of those interested in the conservation of property and property values, and the question of the prevention of such waste has shown such a marked development in the course of the last decade, that it is reasonable to presume and right to state that it has not been overlooked by the managements of the leading class of corporations dealing with commerce, such as the transportation companies of the country, and having such large property values at risk of fire. It is possibly needless to impress my thoughts upon those who have been studying this vast subject and who are assembled here in the organization of an association which will have for its prime purpose the promoting of interest in and the improvement of the methods of fire protection and prevention in such class of properties: but it is rather for us, in the joint consideration of these subjects, to enlist a more general and comprehensive study of them by the railroads and secure an even greater co-operation in the establishment of such practices and safeguards as will lessen the opportunity for loss of property and life by fire in the future.

The enormous values invested in railroad property, aside from right-of-way, roadbeds, etc., and the large liabilities involving the carriers, can be readily comprehended. It is fair to assume we are dealing with a problem affecting billions of dollars in property value. When we glance at the enormous growth of the transportation lines in this country in the last twenty-five years and with the careful study now given by such corporations to all phases of safety and economy in operation, it can readily be seen that the question of fire protection and prevention should play no small part, for aside from the destruction of values brought about by fire losses there is always the incidental and consequential interruption of operations. The nature of the business of transportation companies requires that more than ordinary precautions be taken to safeguard against and keep free from the interruption to their operations which fire loss and damage cause. Such interruption naturally varies with the importance of the property. As an illustration we might cite the destruction by fire of an interlocking tower with the subsequent detention or interruption in train service on up to the large terminal and shop properties, dislocating the machinery of transportation and requiring readjustment involving far-reaching consequential details.

Possibly one of the marked features we, who have been making a study of these subjects, may have encountered, and an important thought brought to our attention, is that in the upbuliding of the transportation lines the question of permanency could not always be taken into consideration, and with the rapid growth and added requirements and necessary changes from time to time the question of conservation of properties has not been as seriously considered as it otherwise might have been. Railroad properties in the early periods were often crudely constructed but of such a character as to supply the requirements of the times, and neecssarily structures were found to have been built on very economical and not durable lines. With later stupendous and permanent growth of traffic, territories becoming thickly settled and fixed, and with the expansion of the large trunk systems, improvements have been made to meet the changed and more fixed conditions and the work of rebuilding or erection of new structures, as with roadbeds, has been studied and presented on a more advanced and higher standard, and enormous sums of money have been expended in improved building construction of the modern period.

CHARLES N. RAMBO.

We cannot but feel impressed with the enormous fire waste of this country which averages approximately $200,000,000 per year and we realize the fire loss in railroad properties plays its

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part in such waste. In the study of protection against and prevention of such loss we are confronted necessarily with a mass of detail in the proper comprehension of the subject and it is obvious that such essentials should be carefully studied out and such uniformities and standards adopted as will be helpful in curtailing to a large extent the bad experience of the past.

We find in railroad properties a multiplicity of operations involving large values, varying from the usual hazards incident to rail transportation to the large repair and construction plants, including machine shops, planing mills, foundries, blacksmith shops, boiler shops, upholstery shops, carpenter and pattern shops, paint and car repair shops, locomotive erecting shops; all with their varied processes and the ordinary and special hazards involved; and the terminals with their large merchandise piers and freight houses, storage warehouses, coaling piers and so on to the minor properties along the line including freight and passenger depots, signal and interlocking towers, coaling and water stations.

The subject of fire protection in a broad sense includes that of fire prevention which, as distinguished from the term fire protection, concerns the removal of the causes of fires.

The essential features to be considered by those who study the problem of fire protection are:

First. To so construct buildings on fire-resisting lines as to minimize the possibility of fire starting and prevent its unrestricted spread and opportunity for serious loss. The proper time to guard buildings against loss by fire is during their construction. One of the reasons why this is not always done, unfortunately, is on account of the initial cost. We must encourage the use of fire-resisting materials, the division of large areas as far as possible and the protection of buildings exposing each other. We have too frequently seen a class of buildings on railroads that is apt to furnish fuel for large conflagrations.

Second. To prevent fire from starting through the reduction and safeguarding of hazards inherent to the particular property. Elimination of the possibility of fires starting should be as carefully considered as the question of good construction and protection.

Third. To provide adequate private and public facilities for extinguishing a fire should it start and be prepared to fight a small fire before it becomes dangerous. All of the expense met with in the installation of fire fighting equipment, water supplies, etc., can be counted as naught if the means to promptly use it is not trained and ready, and if it is not properly cared for and kept in serviceable condition.

We might therefore summarize the important factors in connection with these subjects briefly by asking ourselves the following questions: Are the materials used in constructing buildings incident to this class of property such as will prevent the possibility of combustion or the spread of fire? Are prompt means used to detect the presence of fire? Can the fire be promptly and definitely located? and, Are there ample facilities, directed by trained bodies of men, for extinguishing a possible fire in its incipiency?

There is an indifference on the part of some corporations to the adoption of methods in general use for the protection of their properties against loss by fire. It is obvious what this would mean in event of fire starting.

The theory and practice of fire prevention and protection is a scientific study, including that of general construction, architecture, physics, economics, mechanics, hydraulics, electricity, chemistry, manufacturing processes and fire protection engineering.

One of the first demands in connection with the study of fire prevention is that of good housekeeping, involving a multiplicity of detailed enforcements that will insure it through a large property as a matter of daily duty and through which means the possibility of fires may be largely avoided. This can be accomplished by the appointment of employes in each portion of a property with such authority as may be necessary, to see that cleanliness is observed and through the posting of official notices in prominent places requiring the carrying out of fire protection rules so prepared as to meet conditions usually found in railroad properties.

The protection of properties against fire is an important part of the duty of every officer and employe. Every fire in railroad property should be made the personal responsibility of some employe. It must be remembered that the majority of fire losses are preventable and that they are largely a matter of lack of cleanliness and carefulness and that the great study of prevention must be along these lines.

An important part of the organized work such as can be undertaken by this Association is to obtain from actual experience statistical facts bearing on losses and the causes thereof and to educate along the lines as to the details of causes and as to the care and vigilance necessary to counteract them, so that a reduction in fire loss may be brought about. A knowledge of the causes of losses is essential for the proper comprehension of fire dangers. Many properties may have been immune from loss but frequently there lurks the opportunity for serious damage. Each cause should be fully understood and the necessary remedy applied. The matter of causes is a very broad subject and one requiring special study.

A very good classification of hazards, recently made by a prominent insurance official, divided them into physical, moral and temperamental. Those which are particularly applicable to railroad properties, I believe, are the physical hazard and the temperamental hazard; the first including such as are inherent in the property and its use, such as construction and the hazard of operation; the second including that which would be attributed to carelessness which produces fires, not purposely, but those which could have been prevented by a study of the causes of fires, with less indifference as to the effects which follow or as to the remedies to be applied.

With the consideration of the subject of building construction and the careful and systematic guarding of the housekeeping and operation to reduce or avoid hazards, we include that of fire extinguishing apparatus. This subject necessarily is one of great detail and brings out the study of the extent and character of the properties and the natural conditions surrounding them, and their use and occupancy. The class of appliances will necessarily cover a wide range, starting, however with the idea of having an ample supply of water to meet the maximum of conditions that might arise. Careful study is necessary to determine the specific character of fire extinguishing devices required to meet the demands of each class

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of property. These include the use of a system of automatic protection which is the best class that may be considered and which is recognized as the only one producing the maximum of efficiency and success in controlling fires; water mains and fire hydrant systems under ample volume and pressure from public or private reservoir or other source of supply, with incidental fire pumps, elevated tanks, standpipes, fire hose, fire extinguishers, steam jets, sand pails, water barrels and pails; all of which must be studied and installed with a due regard to their relative values. An important fire fighting agency on railroad properties is the locomotive or yard engine used at terminals and large yards remote from public protection so equipped for supplying water with the aid of fire hose as to give good service in event of fires in rolling equipment and its lading.

Fire alarm systems are an important factor, particularly in large properties, to obtain prompt use of fire appliances through the prompt summoning of drilled employes and municipal departments.

The success of the fire prevention idea must be due entirely to well organized forces in all departments. Without system and organization through the help and authority of executives or the general management such matters cannot be made an important factor with the men. The prevention of the occurrence of those things which hinder or retard the progress of operation or which are a menace to life and property is brought about or is reduced by education through instructions, rules, etc., issued under an executive order. In this way co-operation is secured amongst the rank and file.

Fires, like accidents, happen at unexpected times. Continued vigilance is therefore essential and without a general co-operation and knowledge of dangers we cannot escape their consequences.

The organization of the fire prevention and protection work on railroads must be undertaken with intelligence and a due regard to local conditions. It is necessary that the importance of the work be recognized by all in authority, the chief executives, the general manager, superintendents foremen and agents in charge of property: all educated to the idea that there should be harmony of action. Education as to fire prevention requires thorough publicity that all employes may be advised of its scope and that it may reach all parts of a system and that the old and prevalent idea of security against fire damage may be eliminated.

With the large values involved and elaborate expenditures made for devices and appliances for fire extinguishment, it is important that the furtherance of the organization idea should be pushed for its intelligent and prompt use, without which the expenditures are of no avail when manual use is required of the equipment. Therefore in order to have the appliances serve the good purpose that was intended, it is necessary to so perfect the organization as to get the greatest amount of value therefrom.

Fires, even though promptly discovered, can very often not be handled by employes because of lack of fire fighting equipment or lack of knowledge of how to handle it, and because it is quite usual in such contingencies for people to "lose their heads." Fires have to be scientifically and carefully sought out and fought. Experience has shown that the efforts of undrilled employes, however well intended, will not control a fire as promptly as a disciplined force, made familiar with the protective apparatus by regular drill and practice.

Rigid and systematic inspection of all fire apparatus should also be made by specially delegated employes, preferably members of fire brigades, at least once a week; everything down to the smallest piece of apparatus should be in its place and in good order ready for use, and a report of such inspection should be made to those in authority.

Fire prevention committees, fire marshals, chiefs or captains of fire brigades are all necessary parts of an efficient organization and the inspection of buildings and their valuable contents for fire hazards by such committees or members of fire departments should not be treated in any light manner. Members of fire departments, possibly uniformed or otherwise designated with authority, should be especially delegated to make at least weekly inspections and report to the authorities in charge on the conditions, and day and night watchmen should patrol all parts of the property for the same purpose, having their tours properly recorded on approved devices, to secure efficiency.

There should be monthly conferences of officers or local committees at which matters of general interest might be considered with a view of continuing efforts for substantial improvements, for with all reasonable precaution there is still the factor that relaxation may be fatal.

In passing I might add that the improved construction in railway rolling equipment should eventually work a great factor of saving in the loss by fire on railroads for a large part of their loss has been brought about through inflammable construction of equipment and character of its lading. With the reduction in the amount of inflammable equipment and as for methods of transportation in connection with hazardous commodities under the direction of the Bureau of Explosives, fires may be restricted in large congested yards.

All of these subjects must necessarily receive special consideration and treatment. I have merely tried to point out certain broad essential facts that must be taken into consideration to comprehend the requirements for the conservation of property and the lessening of the possibility of loss to it and life through fire and the consequential results thereof.

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Personal

Alfred H. Smith.

ALFRED H. SMITH, senior vice--president of the New York Central Lines, has been elected president of the New York Central and Hudson River and Lake Shore and Michigan Southern Railroad companies to succeed William C. Brown upon the latter's retirement on January 1. He also was made a director in these corporations. Election as head of the subsidiary lines will take place as the various meetings occur.

The career of Alfred H. Smith, in many respects, has been similar to that of Mr. Brown, whom he will succeed, in that each entered railroading in humble positions, and through hard work, wide experience and ability attained places of high executive importance. Mr. Smith began as a messenger boy in Cleveland for the Lake Shore and Michigan Southern Railway in 1879. Later, he worked for a time in the office of the purchasing agent, and then resigned to join a construction gang engaged in the change of grade and reconstruction of the Lake Shore west of Toledo. In this work he was engaged for several years, becoming foreman and then general foreman in construction work.

In 1890 Mr. Smith was made superintendent of the Kalamazoo division of the Lake Shore and Michigan Southern and successively was made superintendent of the Lansing, Franklin, and Michigan divisions. In 1901 he was appointed assistant general superintendent of the Lake Shore and then general superintendent. A year later, in 1902, he was transferred to the New York Central as its general superintendent.

His appointment as general manager of the New York Central came in 1903 and in 1906 he became also a vice-president. On April 15, 1912, he was made vice-president of the lines west of Buffalo, with jurisdiction over operation, maintenance and construction of all lines in the New York Central system, east and west of Buffalo, with the exception of the Pittsburgh and Lake Erie west and the Boston and Albany and Rutland roads, east of Buffalo.

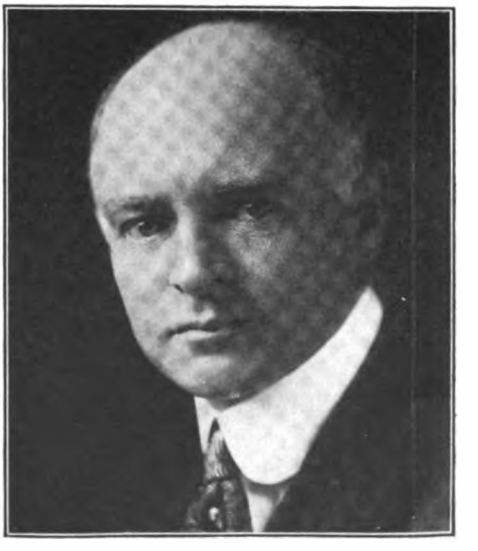
It was in March of this year that Mr. Smith became senior vice-president of the New York Central Lines. This extended his jurisdiction over all of the roads included in the system and over all departments. He is in his 50th year.

In its new executive officer the New York Central Lines have a man thoroughly familiar with all its features of operation and management. His record has been one of steady advancement and the various positions which he has successively held has given him an experience and a grasp of company affairs that splendidly qualifies him for the important and weighty responsibilities which will devolve upon him after the first of the year.

Fairfax Harrison.

ON December first, Fairfax Harrison, formerly vice-president of the Southern Railway Company and for the last three years president of the Chicago, Indianapolis and Louisville Railway Company, of which the Southern is part owner, was elected president of the Southern Railway Company to succeed the late William Wilson Finley, a special meeting of the Board of Directors being held for the purpose of filling the vacancy caused by Mr. Finley's death.

Mr. Harrison is a Virginian, his home being at Belvoir, Virginia. He is peculiarly identified with the South, as his father was private secretary to Jefferson Davis while president of the Confederate States, and all his railroad experience has been with the Southern and its associated lines. Mr. Harrison was born in 1869, and was graduated from Yale with the A. B. degree in 1890, and from Columbia with the A. M. degree in 1891. He was admitted to the bar in New York in 1892 and continued the practice of law in this city until 1896, when he entered the service of the Southern Railway in the legal department as solicitor. In 1903, he was made assistant to the president, and in 1906 became vice-president, which position he held until 1910, when he resigned on being elected



FAIRFAX HARRISON.

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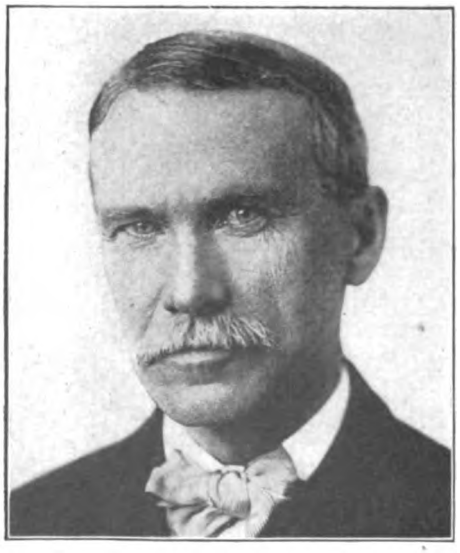
president of the Chicago, Indianapolis and Louisville. He, however, continued as a director of the Southern Railway so that his service with the parent company has been uninterrupted.

Mr. Harrison was one of Mr. Finley's closest and most trusted advisors and is thoroughly in sympathy with the policies which made Mr. Finley's administration so successful both for the Southern Railway Company and the territory served by its lines. Though Mr. Harrison entered the service of the Southern in the legal department, his experience has not been confined to that branch of the service. He has given much study to financial, traffic and operating problems and is intimately acquainted with the conditions on the Southern Railway and throughout the section which it traverses. As president of the Chicago, Indianapolis and Louisville, he was actively in charge of the operation of the railway, so that he comes to the Southern Railway prepared by practical experience as well as the most detailed knowledge of the details of its affairs to take up the duties of chief executive. Mr. Harrison was also elected president of the Alabama Great Southern Railroad, the Mobile and Ohio Railroad, and Virginia and Southwestern Railway.

Resolutions deploring the death of Mr. Finley and paying a high tribute for his work for the railways he headed and the territory they served were adopted by the Board of Directors of the Southern Railway, the Mobile and Ohio Railroad, the Alabama Great Southern Railroad and the Virginia and Southwestern Railway. These resolutions will be printed throughout the South. Immediately following his election, President Harrison gave out the following statement :

"I am in entire accord and sympathy with the policies of my lamented friend, Mr. Finley, under whom I have worked for seventeen years. I hope to continue to build the Southern as he built it by promoting and enhancing its usefulness to and its cordial relations with the people of the South. I count on the support of the entire present working organization of the Southern, rank and file. Having grown up in the service with most of them, I know how to value them and I am proud to believe that they are my friends."



JOHN B. BAIRD.

John B. Baird.

JOHN B. BAIRD, who on November 1 became freight traffic manager of the Northern Pacific, was born June 21, 1855, at Woodlawn, Md. He began railway work in 1876 as a clerk in the general office of the Pennsylvania, at Philadelphia, Pa. Afterwards he went to the Chicago, St. Paul, Minneapolis and Omaha as clerk for the general manager, and subsequently was employed as rate clerk in the general freight office of the Northern Pacific. Later Mr. Baird was promoted to assistant general freight agent of the latter road, in which capacity he served until May 1, 1903. He was then made general freight agent, which position he held until he was appointed freight traffic manager, with headquarters at St. Paul, Minn.

Francis B. Choate.

FRANCIS B. CHOATE, who has recently been appointed assistant general freight agent of the Union Pacific Railroad, has been in the service of the Union Pacific Railroad since 1888, starting at Omaha; then traveling freight agent out of Omaha for Nebraska and Wyoming; traveling freight agent at Portland, Ore., and at Sacramento for some years; then general agent for the Union Pacific at Salt Lake City in 1897, then transferred to general agency at Pittsburgh in 1901; then as general agent of the Union Pacific and Southern Pacific in that city at the time of consolidation in 1901; then transferred as general agent of both companies at Detroit, coming to this city May 20, 1910, as general agent of both freight and passenger departments, giving up the passenger department in February, 1911; since that time general agent of the freight department until present appointment.

F. E. Connors.

F. E. CONNORS, who has been made assistant to Vice-President W. E. Hodges, of the Atchison, Topeka and Santa Fe Railway, with headquarters at Topeka, Kansas, was

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born October 6, 1869, at San Francisco, California. Educated in the public schools. Entered railway service August 15, 1886, with Chicago and Alton Railroad as office boy in the purchasing department, Chicago, Ill., since which he has been consecutively, July, 1887, to October, 1888, clerk in the stationery department; October, 1888, to October 20, 1890, stationer; October 20, 1890, to May 15, 1891, clerk in the stationery department of the Atchison, Topeka and Santa Fe Railroad, Topeka, Kans.; May 15, 1891, to May 21, 1895, chief clerk; May 21, 1895, to October, 1900, clerk in the purchasing department Chicago; October, 1900, to September, 1901, assistant chief clerk; September, 1901, to January 1, 1907, chief clerk; January 1, 1907, to November 15, 1913, assistant general purchasing agent; November 15, 1913, to date, assistant to vice-president in charge of stores.

J. E. Allen.

J. E. ALLEN, who has been appointed assistant general freight agent of the St. Louis Southwestern Railway Company, with headquarters at St. Louis, was born April 6, 1879, at Louisiana, Mo. He was educated in the public school and entered railway service in 1905, since which he has been consecutively to October 1, 1898, in general freight office, Missouri, Kansas and Texas Railway Company, at St. Louis, Mo.; October 1, 1898, to January 1, 1901, in freight claim department, St. Louis Southwestern Railway Company, at St. Louis; January 1, 1901, to June 1, 1906, in general freight office, Missouri, Kansas and Texas Railway Company, at St. Louis; June 1, 1906, to June 1, 1908, chief clerk to general freight agent, same road, same place; June 1, 1908, to June 1, 1909, assistant general freight agent, St. Louis Southwestern Railway Company of Texas, at Tyler, Texas; June 1, 1909, to date assistant general freight agent, St. Louis Southwestern Railway Company at St. Louis.

M. H. Jacobs.

M. H. Jacobs, who has recently been appointed assistant general freight agent of the Western Maryland Railroad with headquarters at Pittsburgh, was born in Waynesboro, Pa., 1877. He entered the service of the Western Maryland on October 1, 1893, at York, Pa., as messenger boy, and in December of the same year was transferred to the commercial freight agent's office as soliciting freight agent. In February, 1904, he was made traveling freight agent at Baltimore and in August, 1912, was appointed general agent at Pittsburgh, which position he held until his recent appointment.

D. G. Gray.

D. G. GRAY, who has been reecntly appointed general freight agent of the Western Maryland Railway, received his education in the Ohio State University. He began his railroad career with the Baltimore and Ohio in 1887 in the office of the division freight agent at Columbus, Ohio. In 1896, he was appointed chief clerk in the office of the general freight agent of this road at Pittsburgh, and in 1902, became division freight agent at Columbus. In July, 1905, he returned to Pittsburgh as division freight agent in which capacity he remained until 1910, when he was promoted to general freight agent of the company at that point. He resigned on December 31, 1912, owing to poor health but again entered railway service with the Western Maryland on March 1, 1913, as general western freight agent at Pittsburgh, becoming general freight agent of that company at Baltimore on November 1st.

Alexander S. Greig.

ALEXANDER S. GREIG was born in Aberdeen, Scotland, October 25, 1860. Served an apprenticeship in a mercantile establishment in Scotland. In 1880 he came to America, and was with a mercantile establishment in London, Canada, for a little over a year, when he moved to Colorado and served two years in the purchasing department of the Colorado Fuel and Iron Company. His first railroad work was with the Denver and Rio Grande in the purchasing department in 1883. He was then transferred to the mechanical department as secretary to the superintendent of motive power, and until 1895 was with the Denver and Rio Grande Railroad as chief clerk in the mechanical and operating departments. In 1895 he went to the Santa Fe, Prescott and Phoenix Railway in Arizona as trainmaster, and in 1897 he went to the El Paso and Northeasten Railway as general superintendent, remaining in that office until 1902 when he became general superintendent and traffic manager. During that year he took up the promotion of a sanitarium for the care of tubercular patients in New Mexico. January 1, 1903, he went to the Rock Island and was in the office of the president on special work for three years. In 1905 he was appointed assistant to President of Frisco Lines. In 1907 was made assistant to chairman of the Executive Committee of the Rock Island-Frisco Lines. In 1909 was made vice-president of the Frisco lines in charge of purchasing and disbursement of materials, etc., and of the land grant lands belonging to that company. On May 1, 1911, in addition to his duties as vice-president, he was appointed assistant to the president, Frisco lines. At the time of the receivership of the Frisco lines he was appointed assistant to the receivers, and on November 15, 1913,

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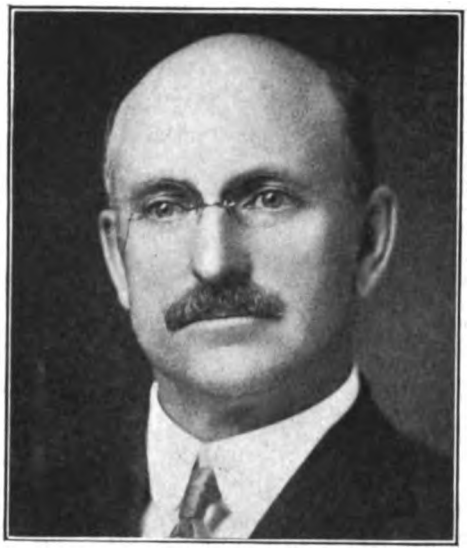
in addition to his duties as assistant to the receivers, was appointed first assistant to the chief operating officer, which position he now holds.



E. I. Grenfell.

E. I. GRENFELL, who was recently appointed auditor of the Fort Worth and Denver City Railway Company with headquarters at Fort Worth, Texas, was born in 1865 at Dodgeville, Wisconsin. He began his railway work in Jannary, 1883, with the Union Pacific, being employed as local agent until December, 1893, when, owing to receiverships and segregation of properties, went with the Union Pacific, Denver and Gulf, which was reorganized in 1899 as the Colorado and Southern. Entered the auditing department April 1, 1899, as traveling auditor; in September, 1902, became joint accountant, and in December, 1906, was made chief clerk. July; 1907, was appointed assistant general auditor, which position he held until appointed auditor of the Fort Worth and Denver City Railway, and consulting auditor of The Wichita Valley Railway, Fort Worth, Texas, October 20, 1913.

Daniel Joseph Brumley.

D. J. BRUMLEY, who was recently appointed assistant chief engineer of the Illinois Central Railroad and the Yazoo and Mississippi Valley Railroad, with headquarters at Chicago, was born in 1865, at Belmore, Ohio. After taking a course in civil engineering at the Ohio State University, he entered railway service in 1895, as assistant section foreman for the Louisville and Nashville Railroad and in 1896, he was made assistant engineer of the Columbus and Hocking Valley Coal and Iron Company, and in the latter part of that year, became assistant supervisor of the Louisville and Nashville Railroad at Belleville, Ill. In May, 1907, he was appointed rodman of the Louisville and Nashville at Louisville, Ky. and in March of the following year, became assistant engineer of that road with headquarters at Clarksville, Tenn. In 1898, he was transferred to the chief engineeer's office at Louisville, and in 1901 he became associated with the Mexican National Railroad as roadmaster at Laredo, Texas, but in the latter part of that year, he again became associated with the Louisville and Nashville Railroad as roadmaster at Elizabethtown, Ky. In 1904 he accepted a position as division engineeer of the Indianapolis Southern Railway at Indianapolis, Ind., and in 1905, became principal assistant engineer of the Illinois Central Railroad and the Yazoo and Mississippi Valley Railroad at Chicago. In 1910 he was made engineer of construction of these lines and in 1913 engineer maintenance of way, which position he held until his recent appointment.

Thomas W. Hulme.

THOMAS W. HULME has been appointed real estate agent of the Pennsylvania Railroad, succeeding Benjamin W. Carskaddon, deceased. Mr. Hulme was born near Mout Holly, N. J., on August 11, 1868. He received a public school education, and later entered the University of Pennsylvania, and received from that institution the degree of B.S. and C.E. He entered the service of the Lehigh Valley, in the real estate department, in 1890. During the period of the lease of the Lehigh Valley by the Philadelphia and Reading, February, 1892, to August, 1893, he was in the real estate department of the latter company, and also in the president's office. He returned to the service of the Lehigh Valley upon the termination of the lease and was made assistant real estate agent, remaining in that position until June, 1904, when he entered the service of the Pennsylvania Railroad in connection with the work of the real estate department in New York City. In November, 1904, Mr. Hulme was made assistant real estate agent of the New York Connecting Railroad, and on May 1, 1905, was appointed assistant real estate agent of the Pennsylvania System East of Pittsburgh, and was transferred to the general office in Philadelphia. Upon the formation, in May, 1913, of a committee of eighteen railroad presidents to look after the interests of the railroads in connection with the valuation of their properties by the Interstate Commerce Commission, Mr. Hulme was elected general secretary of the presidents' committee and was furloughed in order that he might so act.

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Obituary

W. W. Finley.

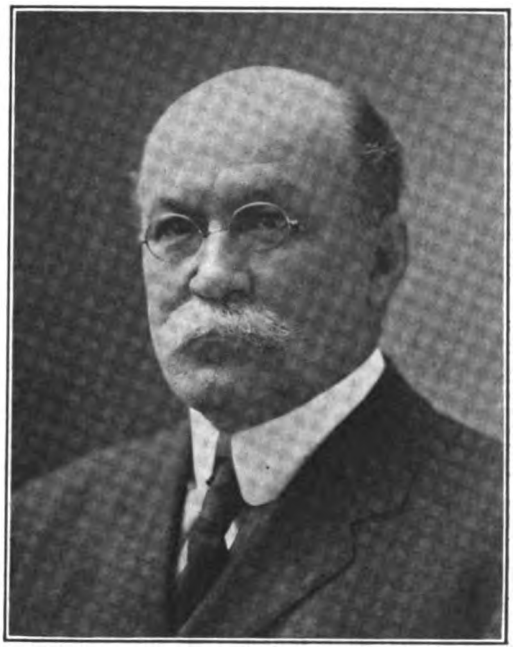
IN the death of William Wilson Finley, president of the Southern Railway, which occurred suddenly in Washington, on November 25th, that great system has lost a chief executive who has done more for its material welfare than any of his predecessors.

When Mr. Finley succeeded Samuel Spencer in 1906, he found the Southern Railway in a nearly bankrupt condition. His wonderful appreciation of the situation in which he recognized the imperative necessity of up-building the territory through which this system operated, has not only resulted in its complete rehabilitation, but has brought an abundant blessing to the people of the South.

Mr. Finley possessed a profound knowledge of economic affairs, was a fluent talker and his enthusiasm in the future of both the Southern Railway and the Southern people, was unbounded. It would be hard to measure the value of this one man's constructive genius to the Southern States, but the farm and the factory have felt it to a remarkable extent. The South had come to love and trust him and each year brought to them a fuller appreciation of his wonderful ability. His loss is irreparable and the deep feeling of regret everywhere manifested, constitutes one of the highest public tributes ever paid a railroad official.

Mr. Finley was born at Pass Christian, Miss., September 2, 1853. He was educated in the public schools of that place and on May 1, 1873, entered the service of the New Orleans, Jackson & Great Northern and the Chicago, St. Louis & New Orleans as stenographer to the vice-president. After three years' service in this position he was for nine months secretary to the receiver; secretary to the agent for the trustees for one year, chief clerk, general freight department, for four years, and assistant general freight agent for three years. From March 1, 1883 to December 15, 1885, he was assistant general freight agent of the Texas & Pacific Division of the Missouri Pacific, and from that time to July, 1886, was assistant general freight agent for the receiver of the Texas & Pacific. He was then appointed general freight agent, which position he held until September, 1888, when he took the position of general freight agent of the Pan Handle Route, comprising the Fort Worth & Denver City, the Denver, Texas & Fort Worth and the Denver, Texas & Gulf.

In May, 1889, Mr. Finley was made chairman of the Trans-Missouri Traffic Association at Kansas City, Mo. From October 1, 1890, to May 20, 1892, he was chairman of the Western Passenger Association at Chicago. He then entered the service of the Great Northern as general traffic manager. He left this position April 10, 1895, to become commissioner of the Southern States' Passenger Association at Atlanta, Ga. He first became associated with the Southern Railway on October 1, 1895, as third vice-president. On May 15, 1896, he returned to the Great Northern as second vice-president, but remained with that road only four months, returning in September as second vice-president. On December 5, 1906, he succeeded to the presidency of the Southern, which he filled to the time of his death. In addition he was president of the controlled lines—the Alabama, New Orleans & Texas Pacific; Georgia Southern & Florida; Mobile & Ohio; Northern Alabama; Southern Railway in Mississippi, and Virginia & Southwestern.



W. W. FINLEY.

Mr. Finley is survived by his wife, three daughters and a son, the latter being connected with the Pennsylvania Railroad. In 1910, the University of Tulane conferred on President Finley the degree of LL.D. He was chairman of the board of directors of the Bureau of Railway Economics at Washington and was a director of the Chicago, Indianapolis & Louisville Railway, of the Old Dominion Steamship Company and several other enterprises.

Thomas M. Emerson.

BY a strange and sad coincidence the railroads of the South, on the same day of Mr. Finley's death, sustained another severe loss in the demise of Thomas Martin Emerson, president of the Atlantic Coast Line Railroad, who passed away suddenly at his home in Wilmington, N. C., almost immediately after his return from a trip of inspection with the directors of his company.

Mr. Emerson was unquestionably one of the most prominent traffic men of the South, having been for twenty-three years head of the traffic department of the Atlantic Coast Line. It was in 1905 that he became president and under his guidance and broad policy of extension, improvements have been steadily carried on which have included the construction of a large amount of double track and the re-laying with heavier

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rails of a large portion of the system. Modern stations have been erected at many points, steel trestles constructed and better rolling stock installed, all of which has resulted in bringing the road up to a very high standard.

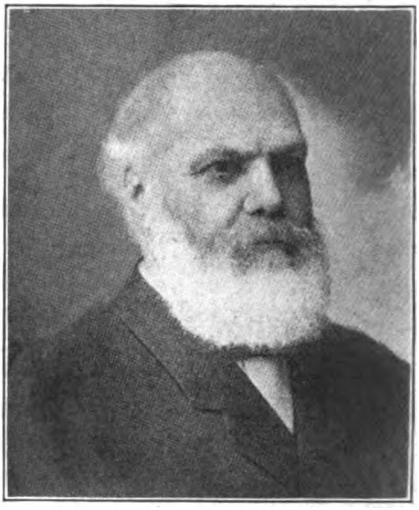
Mr. Emerson, like Mr. Finley, has always had a keen appreciation of the necessity of more fully developing the natural resources of the South, particularly those of agriculture, and the active work of this character, carried on under his supervision has proved highly beneficial to that section of the South through which the Atlantic Coast Line operates. Each year has seen a large number of new industries established and a steady influx of new settlers who are constantly being educated along agricultural lines through the operating of good roads trains, agricultural trains and farm demonstration trains.

Mr. Emerson was born in Preble County, Ohio, March 29, 1851, and began railway service in Indiana as a freight clerk at the age of sixteen. He worked on the Fort Wayne, Muncie & Cincinnati and the Charlotte, Columbia & Augusta (now a part of the Southern) and was a telegraph operator a part of the time. His first position on the Atlantic Coast Line was that of chief clerk in the general freight and passenger department in 1875. In 1881 he left and went to the Chesapeake & Ohio as assistant general freight agent, but he stayed only a year and then returned to the Atlantic Coast Line, and from August, 1882, to July, 1891, he was general freight and passenger agent of that road. He was then made traffic manager. In November, 1902, he became vice-president in charge of traffic, and three years later, November 21, 1905, was made president.

John H. Marble.

JOHN H. MARBLE, the youngest member of the Interstate Commerce Commission, and also the youngest in length of service, died suddenly at his home in Washington, on the evening of November 21st, at the age of 46. Mr. Marble was taken sick while conducting a hearing in Philadelphia. Mr. Marble was born in Ashland, Neb., February 26, 1869, and was educated at the University of Nebraska. He went to California and was admitted to the bar in that State in 1903. While living in San Francisco he became acquainted with Franklin K. Lane, now Secretary of the Interior, and when Mr. Lane went to Washington as a member of the Interstate Commerce Commission he soon engaged Mr. Marble for the service under that body. In 1912 he succeeded Edward A. Moseley, as secretary of the Commission; and a year later, when Mr. Lane took a place in the cabinet, was appointed by President Wilson to succeed Mr. Lane as a member of the Commission. At a public hearing held by the Commission in Washington on November 24th, Chairman Clark, observing that the commissioners, if they followed their personal inclinations, would suspend business for a time, paid a warm tribute to the personal character of Mr. Marble, whom he praised as a man of genial, helpful and splendid personality, indefatigable industry, sterling integrity, and broad fair-mindedness.

JOHN H. MARBLE.



James Charlton.

JAMES CHARLTON, chairman of the Transcontinental Passenger Association, died November 19th at his home in Chicago, at the age of 81 years. He had been ill since the death of his wife about four weeks previous. Mr. Charlton was born May 15, 1832, at Bothal, Northumberland, Eng. He began railway work in England in April, 1847, in the freight department of the Newcastle & Carlisle Railway at Newcastle-on-Tyne, where he was successively junior clerk, chief clerk and cashier, until March, 1857. He then came to Canada, and from April 29, 1857, to 1870, was employed by the Great Western of Canada as assistant to chief clerk in the audit office, in charge of statistics and freight accounts, and as chief clerk, auditor and general passenger agent. In March, 1870, he accepted a position as general ticket and passenger agent of the North Missouri, and in July of the following year he became general passenger and ticket agent of the Chicago & Alton. He held this position for almost 29 years, resigning January 1, 1900. In October of that year, Mr.

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Charlton was made chairman of the Transcontinental Passenger Association. Two of Mr. Charlton's sons are in railway service, George J. Charlton as passenger traffic manager of the Chicago & Alton, and Alexander D. Charlton as assistant general passenger agent of the Northern Pacific at Portland, Ore. Train service on the Chicago & Alton was suspended for three minutes on November 21st in honor of Mr. Charlton.

Horace I. Bettis, for the past ten years auditor of the San Pedro, Los Angeles & Salt Lake, with headquarters at Los Angeles, Cal., died at Tipton, Cal., November 15th. Previous to July, 1903, Mr. Bettis was for two years assistant general auditor of the Union Pacific.

T. E. Brown, assistant general passenger agent of the Boston & Maine R. R., died at his home in Concord, N. H., October 25th.

James Hagerman, former general counsel of the Missouri, Kansas & Texas Ry., died in St. Louis, Mo., November 14th, aged 65 years.

Joseph E. Harris, formerly agent of the Union Line of the Pennsylvania system at Indianapolis, Ind., died in that city, November 13th, in his sixty-eighth year. Mr. Harris was in the active service of the Pennsylvania Lines for 38 years, and has been on the pension roll since August, 1, 1911.

Frederick A. Haskell, formerly general freight agent of the New York Central & Hudson River R. R., died November 3rd at his home in Brooklyn, N. Y.

W. P. Johnson, formerly from 1880 to 1887, general passenger agent of the Lake Shore & Michigan Southern, died at his home in Chicago, on November 16th. Mr. Johnson was born at Whitehall, N. Y., in 1834, and entered railway service in 1852 with the Western Vermont. He was subsequently with the Chicago, Burlington & Quincy, and in 1854 became a clerk in the office of the general ticket agent of the Illinois Central at Chicago. The following year he was made general passenger agent of that road, which position he held until June, 1880, when he resigned to go to the Lake Shore.

C. E. Pfender, auditor and traffic manager of the Chicago & Illinois Western R. R., died at Chicago, on November 16th.

Matthew J. Ramsey, chief clerk to the general manager of the Pennsylvania Railroad, died on November 9th, at his home in Overbrook, Pa. He was born in Newark, Del., on April 1, 1849, and began railway work as a telegraph operator at Perkiomen Junction on the Philadelphia & Reading in 1866. Five years later he entered the service of the Pennsylvania Railroad as a telegraph operator at Pier No. 2, New York City. He was transferred to Philadelphia, the following year, and in July, 1874, was appointed telegraph operator in the general manager's department. He served as a telegraph operator, and later as a clerk until February 10, 1897, and since that time had been chief clerk of the general manager's department.

Milton C. Roach, who was for eighteen years general eastern passenger agent of the New York Central & Hudson River at New York City, died on October 31st, at Montrose, Pa. He was born on September 20, 1852, at Erie, Pa., and began railway work in 1873, on the Canada Southern, now a part of the Michigan Central, as clerk in the purchasing department. He was then successively bill clerk in the freight office, chief clerk of the ticket accounts in the auditor's office, passenger agent and city ticket agent at Detroit, Mich.; passenger agent for Michigan, western passenger agent and general northern and southern passenger agent. He then served in the passenger department of different roads until he went to the New York Central in January, 1886, as general agent in the passenger department, at Buffalo, N. Y. The following year he was made general eastern passenger agent at New York, and in September, 1904, was promoted to assistant general passenger agent of the same road, remaining in this position until he resigned and left railway work, in 1907.

Charles H. Smith, traveling freight agent of the Chicago, Indiana & Southern, with headquarters at Minneapolis, Minn., died on November 4th, aged 58 years.

W. A. Vaughan, former general superintendent of the Southern Railway, died recently in Atlanta, Ga. Mr. Vaughan, who was born in Vermont had been in railway service since 1870 principally with the Michigan Central R. R. and Southern Railway.

Financial

An Unsatisfactory Situation.

RECENT developments have thrown a gloom over the financial outlook. The tariff, the proposed currency legislation, the plight of the railroads and their constantly decreasing net revenues, the general feeling of uncertainty which appears to prevail throughout the industrial field, all combined have exerted a depressing influence whose full strength has been thrown upon the security market. The failure of the New Haven System to declare its regular quarterly dividend, and the recent statement of Commissioner Prouty at a dinner of the Lotus Club in New York to the effect that the carriers need not expect a full measure of relief until their financial operations came more directly under the supervision of the Government, have also added to the feeling of depression which, at the present time, is nation-wide in its influence. The encouraging feature of the situation is that the feeling of discouragement now prevalent does not really spring from fear of industrial or financial collapse, but is largely political in nature. Conditions are fundamentally sound and business would only require the slightest encouragement, to regain its normal activity.

No one who really understands the situation, however, doubts that a denial of the carriers' request to increase their rates, would seriously retard the return of prosperity, if it did not actu-

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ally bring about panic conditions. The recent utterance of Mr. Prouty as well as certain published statements by Mr. Brandeis, intimate that the question of interlocking directorates is to play an important part in the rate hearings and has led to the belief that it may cause the defeat of the rate advance. We do not share this belief. While the existence of so-called interlocking directorates may be proven, Mr. Brandeis and his associates will have to show in addition the detrimental effect of such influence upon the actual prices paid for supplies, before such argument can be logically used to defeat the railways' request for increased rates.

So far as the tariff is concerned, the fear of an invasion of foreign goods on any large scale is being dissipated, as imports are not reaching the figures which were anticipated before the passage of the bill. There is apparently a disposition on the part of foreign manufacturers to take a conservative attitude on account of a doubt as to whether the bill, as it now stands, will be continued through the present and succeeding presidential terms. Both time and money are required to establish new markets and unless these markets can be considered permanent, it is hardly worth while to make the effort. Certain it is that the tariff propaganda is really the action of a minority party and it would not be at all surprising if the next four years saw such an overwhelming change in popular sentiment on this question as to practically undo all the work of the present Administration.

At the present writing the currency bill still continues to be the absorbing topic in financial circles and there is still expressed a fear that the measure as finally passed will be so unsound as to cause grave distress. However, the bill is constantly being subjected to amendment and it can at least be hoped that many of the objectionable features will be eliminated. It is useless at the present time to criticise any particular point, as the different items under review are constantly being reshaped. The Administration is making every effort to have the measure finally passed by Congress before Christmas. It may be said in general that the bill has been strengthened very materially by putting more responsibility upon the proposed Federal Board which will have to determine the number of regional reserve banks as between eight and twelve, and will also have discretionary power to determine or continue national banks that, at the expiration of one year, have not come into the system. It is understood that Secretary McAdoo has privately expressed his intention to hold back the funds of the National Government in order that he may apply them as needed to assist the present national banking system in making transfers of reserves to the new reserve banks without financial or business disturbances. It would appear that the great danger of the bill as it now stands, is that of inflation by billions without the proper regulatory powers of control of rates and reserves with the Federal Board or with the Government. There is little probability that the bill, as now shaped, will, upon its inauguration, produce either contraction or panic.

Reverting again to the railway situation, statistics recently compiled show that despite the fact that $650,000,000 additional money has been spent on improvements since 1910, the net corporate income is fully 10 per cent less than in 1910 and nearly 17 per cent less on capital stock. These figures prove in a very definite manner, that if the railroads are not to be forced out of private control, they should either be allowed to reduce wages or increase rates. As the former is practically out of the question, it is to be hoped that the Commission will appreciate the carriers' difficulties and render them prompt assistance.

The attitude of the Administration towards big business is another question which is receiving more or less discussion and attention by the public press. Up to the present time, however, there have been no radical tendencies displayed in this direction and Mr. Wilson's recent message to Congress shows no desire on his part to unduly interfere with business other than to see that corporations shall operate in harmony with the law.

With regard to the situation in Mexico, it is reassuring to know that the President's own view is a hopeful one. He believes that the present Government is about to fall and that in a short time we may hope to see constitutional order restored by the concert and energy of those of her leaders as prefer liberty of their people to their own ambitions. In any event, the President's message does not show any immediate disposition on the part of this country to actively interfere, and it thus relegates the influence of the Mexican situation on business, for the present at least, to a relatively unimportant position.

As to business in general, there seems to be marked depression in the machinery, iron, steel, lumber and some branches of the textile trades. Many business men are expressing firm conviction that the year 1914 will prove to be a period of considerable dullness. It is interesting to note, however, that a general depression of trade is reported throughout the world and, according to the general average of trade activities throughout the United States, our American industries are suffering comparatively less than those of other nations.

October Railroad Results.

REPORTS to the Interstate Commerce Commission from 170 roads for October, show total operating revenues of $1,054,039,491 as compared with $1,027,280,045 for October, 1912. Net operating revenues for the same months were $332,700,918 for 1913 and $359,921,099 for 1912, indicating a loss for October of the present year of over $27,000,000.

As to operating results of the Northwestern roads for October, including the St. Paul, North Western, Burlington, Great Northern and Northern Pacific, they were generally unfavorable as compared with the corresponding month of a year ago, both as regards the gross and the net. Only two of these companies were able to show any improvement in gross, while all sustained losses in net. The showing of these companies is not exceptional, as practically every railroad in the country is suffering from the effects of a general slowing down in business and small crop movement.

The Stock Market.

IT is hardly necessary to state that the stock market during November was in a highly unsatisfactory condition. Lower levels were generally reached in all prominent stocks, while the number of daily transactions were with few

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exceptions, extremely small. The passing of the New Haven dividend caused a violent break in the market which extended to many railway securities. New Haven began paying dividends in 1873, and for twenty years thereafter, maintained a 10 per cent rate. In 1894, it fell to 9 per cent; in 1895 to 8 per cent, which it continued until the early part of this year when dividends were cut to 6 per cent on the basis of 1½ per cent quarterly. The failure of this road, therefore, to recently declare its quarterly dividends, has placed it temporarily, at least, among the non-dividend paying railways.

After the decision of the Board to pass the quarterly dividend, Chairman Elliott made public the following formal statement:

"The New Haven is a strong company, owning valuable property, real estate and securities worth many millions of dollars. Some of this real estate and the property represented by the securities and the securities themselves can in time, be marketed, and thus strengthen the cash resources of the company. It is very difficult to sell property and securities at this time, and the directors believe it is unwise to attempt to do so until general conditions are better.

"During the calendar year 1913, the road had already paid dividends of five per cent amounting to $8,657,361.50. For the four months of the fiscal year, July 1 to October 31, 1913, the income available from all companies upon which the New Haven can draw is, in round numbers, $3,390,000; estimating that the net income for November and December will be $500,000, makes a possible total income for six months of $3,890,000. Deducting from this the 1½ per cent dividend, $2,356,768, paid September 30, leaves $1,533,231, all of which is required for working capital.

"The company is now entering upon those months where the volume of business is apt, under normal conditions, to be less than during the months July to November, inclusive. The arbitration of wage disputes in the last eighteen months has resulted in increases in pay that will increase expenses for the present fiscal year between $800,000 and $1,000,000. The improvements to which the company is already committed, in the interest of safety, efficiency and greater convenience to the public, will take large sums of money.

"The directors feel, therefore, that the welfare of the company, of its stockholders and of the territory served by the various lines will be conserved better under all the conditions now confronting the company by not declaring at this time a dividend."

Regarding resumption of dividends, Mr. Elliott said: "We are letting the future take care of itself."

As expected in well informed quarters, the American Express Company has declared a quarterly dividend of 2 per cent which compares with the previous quarterly rate of 3 per cent and places the company upon an 8 per cent per annum dividend basis as against 12 per cent which has been paid for a number of years.

The action of Adams Express Company, a fortnight ago, of maintaining dividends at the rate of 12 per cent, in view of the uncertainty of the future of the express transportation business, had the effect of creating a doubt in the minds of many as to whether American Express would make any reduction after all in its dividend; but well informed quarters are of the belief that the action taken by American Express directors, in the light of developments, is by far the wiser course of the two companies, whose dividends for so long have been consistently on a 12 per cent basis.

Declaration of the regular 1¼ per cent quarterly dividend by the New York Central and Hudson River Railroad Company was in direct line with expectations of those well informed regarding the affairs of the property. For the past few days rumors had been current in Wall Street that the rate would be cut to 4 per cent, but in official quarters little attention was given to the report. The rate of dividend paid by the company for the past couple of years has been 5 per cent per annum, 5¼ per cent in 1911; 5¾ per cent in 1910; 5 per cent in 1909; 5¼ per cent in 1908; 6 per cent in 1907, and 5 per cent from 1900 to 1906, inclusive.

According to those familiar with the situation, it is expected that the company for the fiscal year to end of December 31 next will show a substantial surplus over and above dividend requirements. There was a surplus of about $2,750,000 for the calendar year 1912, $4,160,000 in 1911, $925,000 in 1910, and $4,760,000 in 1909. In 1912 the company earned 6.23 per cent on its outstanding capital stock, contrasted with 6.87 per cent in 1911; 6.41 per cent in 1910, and 7.67 per cent in 1909.

Up to the close of October the company had recorded an increase in net operating income of about $1,300,000, as compared with the corresponding ten months of the previous year. In October there was a net loss of nearly $600,000, compared with October last year. Therefore, if the company were to sustain losses of the October proportions during the remainder of the year, the net would still be as large as in the previous year. There will, however, be an increase in interest charges for the 12 months, as a result of the sale of a considerable amount of short term securities since January 1 last. It is impossible, however, as yet to make an accurate estimate of the probable showing for the full calendar year.

In view of the recent suspension of the New Haven's dividend and the important changes which have taken place in the dividends of a number of other transportation companies, it is of interest to note the extent of present-day stock ownership. According to a compilation recently made by the *Wall Street Journal*, 46 prominent roads of the country, which show share capitalization exceeding $5,000,000,000, have 425,000 shareholders. For these 46 roads the average holdings are 118.7 shares.

Range in Stock Prices.

THE following diagram prepared by the *Magazine of Wall Street*, from the combined averages of fifty railroad and industrial stocks published by the New York *Times*, graphically illustrates the declining tendencies in stock prices during the recent months and particularly during November. The market was extremely quiet during this month and the number of transactions unusually small. While the minimum average was not so low as it was for either June or July, the maximum was far below that of any month for the present year, or in fact for a number of years.

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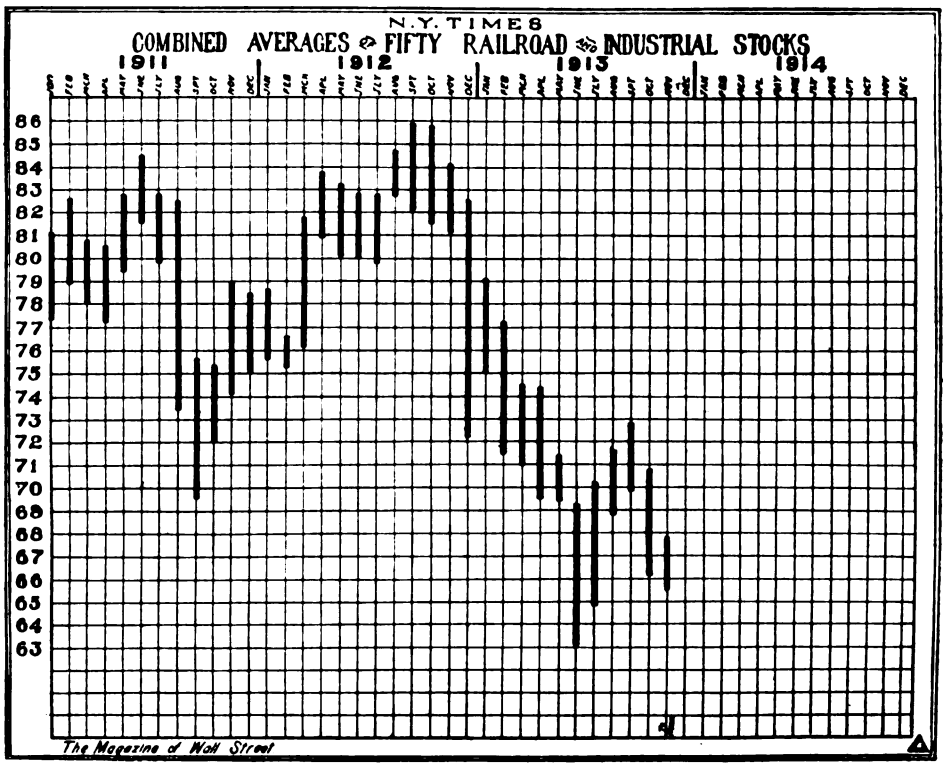

Big Drop in Capital Issues.

COMPLETE returns of new securities announced by railroad and industrial corporations during November according to the New York *Journal of Commerce* indicate a total of only $87,027,000, against $140,082,000 in the same period a year ago, a decrease of $53,055,000. The railroads issued $67,003,000 of bonds, short-term notes and stocks, while the industrials put out $19,904,000. It cannot be too strongly emphasized that our records of security issues includes sums raised to pay off maturing obligations and to refund different issues, so that allowance should be made for this in an effort to arrive at a total. As bearing on this point, it may be well to note that the November maturities amounted to $25,061,500, while those for December are estimated at $45,807,000.

The figures given below were compiled by *The Journal of Commerce and Commercial Bulletin* and summarize the actual issues of new securities for November, compared with the corresponding month of 1912:

RAILROADS.

	1913.	1912.	Changes.
Bonds ...	$20,155,000	$30,774,000	— $10,619,000
Notes	46,008,000	61,543,000	— 15,535,000
Stocks ...	900,000	17,000,000	— 16,100,000
Total ..	$67,063,000	$109,317,000	— $42,254,000

INDUSTRIAL CORPORATIONS.

	1913.	1912.	Changes.
Bonds ...	$6,810,000	$15,595,000	— $8,785,000
Notes	1,000,000	2,250,000	— 1,250,000
Stocks ...	12,154,000	12,920,000	— 766,000
Total ..	$19,964,000	$30,765,000	— $10,801,000
Gd. t'l..	$87,027,000	$140,082,000	— $53,055,000

The foregoing totals do not include state and municipal bonds.

The eleven months' financing follows:

RAILROADS.

	1913.	1912.	Changes.
Bonds ...	$384,884,000	$484,764,500	— $99,880,500
Notes	391,627,200	246,310,300	+ 45,316,900
Stocks ...	137,704,900	193,553,000	— 55,848,100
Total ..	$914,216,100	$1,024,627,800	— $110,411,700

INDUSTRIAL CORPORATIONS.

	1913.	1912.	Changes.
Bonds ...	$207,040,000	$372,784,700	— $165,744,700
Notes	151,151,000	120,075,000	+ 31,076,000
Stocks ...	299,318,700	573,611,000	— 274,292,300
Total ..	$657,509,700	$1,066,470,700	— $408,961,000
Gd. t'l.	$1,571,725,800	$2,091,098,500	— $519,372,700

THE BOND MARKET.

According to the *Wall Street Journal* the average price of twenty-five representative railroad bonds declined nearly a full point to 83.975 during the past month. The average stands at a lower figure than at the end of any previous month of the year or for any year since 1907.

As compared with the lowest prices reached by bonds about the middle of June this year the average is now up little more than 1½ points; and as compared with the lowest 1907 panic prices, when the average stood at 79.08, railroad bonds are now up less than five points.

The average price around the end of each month for the past six years has stood as follows:

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	1913.	1912.	1911.	1910.	1909.	1908.	1907.
January	89.15	90.94	91.43	92.84	93.71	88.66	94.14
February	88.04	91.14	91.15	92.97	93.90	86.41	93.45
March	86.98	90.82	91.44	91.88	93.81	87.35	90.62
April	85.67	90.68	91.43	91.10	94.20	88.07	91.96
May	85.43	90.08	91.56	90.98	94.30	89.89	90.05
June	83.99	90.14	91.43	90.65	94.00	89.19	95.52
July	85.10	89.86	91.40	90.87	94.14	89.97	89.83
August	86.70	89.57	91.10	90.42	93.70	91.07	87.74
September	85.85	89.06	90.23	91.61	93.54	91.59	88.22
October	84.89	89.34	90.99	91.44	92.72	92.77	82.63
November	83.97	89.04	91.37	90.94	92.80	93.97	82.44
December	88.67	90.97	91.13	93.04	95.25	85.50	

While the whole situation is uncertain, many bond dealers profess to see indications of better conditions ahead. Expectations of easier money after the first of the year is, of course, the basis of such expectations and there has been some slight improvement in prices recently. This is accounted for largely by the fact that the declines in November carried railroad bonds to within two points of the June low averages and therefore tended to somewhat stimulate the market during the early part of December.

It is reported that arrangements have about been concluded by the Lehigh Valley for the sale of $10,000,000 of its general consolidated mortgage gold bonds, due May 1, 2003, to Drexel and Company, Philadelphia bankers, their fiscal agents. The bonds are part of an authorized issue of $150,000,000 of which over $26,000,000 are now outstanding.

Authority to issue $10,696,000 4½ per cent equipment trust certificates at 93½ has been asked by the New York Central Lines in Ohio, from the Ohio Public Utilities Commission. These equipment trusts are part of an authorized issue of $24,000,000 of which about half were sold a year ago.

The Illinois Central Railroad has sold to Kuhn, Loeb and Company $10,000,000 Illinois Central and Chicago, St. Louis and New Orleans 5 per cent joint refunding bonds. It is understood that about one half of the bonds will be placed abroad. They are part of a total issue of $120,000,000 which the stockholders have recently approved.

At a regular meeting of the directors of the Canadian Pacific Railway on December 8th, a trust fund was created to be known as "The Special Investment Fund," made up of deferred payments on land sales and securities in which cash proceeds of land sales are invested to the aggregate of $55,000,000. The Royal Trust Company of Montreal is named as trustee of the fund. It is also decided to offer to the common stockholders of record December 23, 1913, in proportion to their respective holdings or a ratio of five to one, $52,000,000 of note certificates carrying interest at 6 per cent per annum payable semi-annually, at a price of 8 per cent of their par or face value. The road will redeem all of the note certificates on their face value on or before March 2, 1924, but these note certificates may be redeemed in part by drawing at any time when the trustees had funds in hand for the purpose.

Sir Thomas Shaughnessy, president of the Canadian Pacific Railway Company, when asked why it was necessary to raise so large a sum as proposed at the recent meetnig of the board of directors, stated:

"The company is not short of funds by any means, its bank account being of very comfortable proportions, but it has for many years been the company's policy to be strong in its cash resources, and, considering the magnitude of the enterprise, this is manifestly prudent.

"Works of improvement, now in progress, to provide for the company's traffic, will require a considerable sum to finish. The additional railway mileage constructed and nearing completion represents an expenditure of upwards of $40,000,000. To meet this expenditure the directors have authority to issue and sell 4 per cent consolidated debenture stock, but this is not the time to go into the market with a large issue of that security to the prejudice of the commanding position that it has always had in the London market, and will again have when normal conditions are restored. Any issue of debenture stock, excepting such small amounts as may be required to meet the demands of the market, must be postponed until some more opportune time. Neither would an increase of the company's capital stock be desirable just now.

"In view of these circumstances the directors decided to ask the shareholders to loan the company the money likely to be required for its purposes during the next year or two on terms that would be advantageous to them, and the issuance of $52,000,000 of note certificates was determined upon accordingly.

"When the proceeds of land sales, to an amount exceeding $62,000,000 had been invested in the property the land assets were permitted to accumulate, and these now constitute the special investment fund of $55,000,000 that has been set aside and ear-marked as applicable only to the principal and interest of the note certificates.

"Of course, it goes without saying that were the company to go into the market to borrow money on its own credit in the ordinary way, better terms could be arranged, but this was a special transaction between the company and its shareholders, and it was intended that the shareholders should have the distinct advantage to which they are entitled.

"These note certificates will constitute no permanent charge against the company's revenue, indeed, they make no demand whatever on the income from the company's traffic. It is a debt that will obliterate itself in the course of a few years.

"The unsold lands and other extraneous assets will remain undisturbed for the future benefit of the shareholders, and it is evident that the income from them will be sufficient for the purpose to which it has, for some years, been largely devoted."

Revenues and Expenses for September.

THE Bureau of Railway Economics at Washington has issued its regular monthly bulletin which contains a summary of revenues and expenses of steam roads in the United States for the month of September. Returns for this month reduced to a per mile of line basis and compared with the returns for September, 1912, show an increase in operating revenues per mile of 2.6 per cent, but an increase in operating expenses per mile of 7.3 per cent. Net operating revenue per mile was less by $26, or 6.0 per cent, than for September, 1912, while that for September, 1912, was 5.1 greater than for September, 1911. These tendencies are extremely disquieting and indicate the desperate situation in which the carriers will soon be placed, unless some suitable

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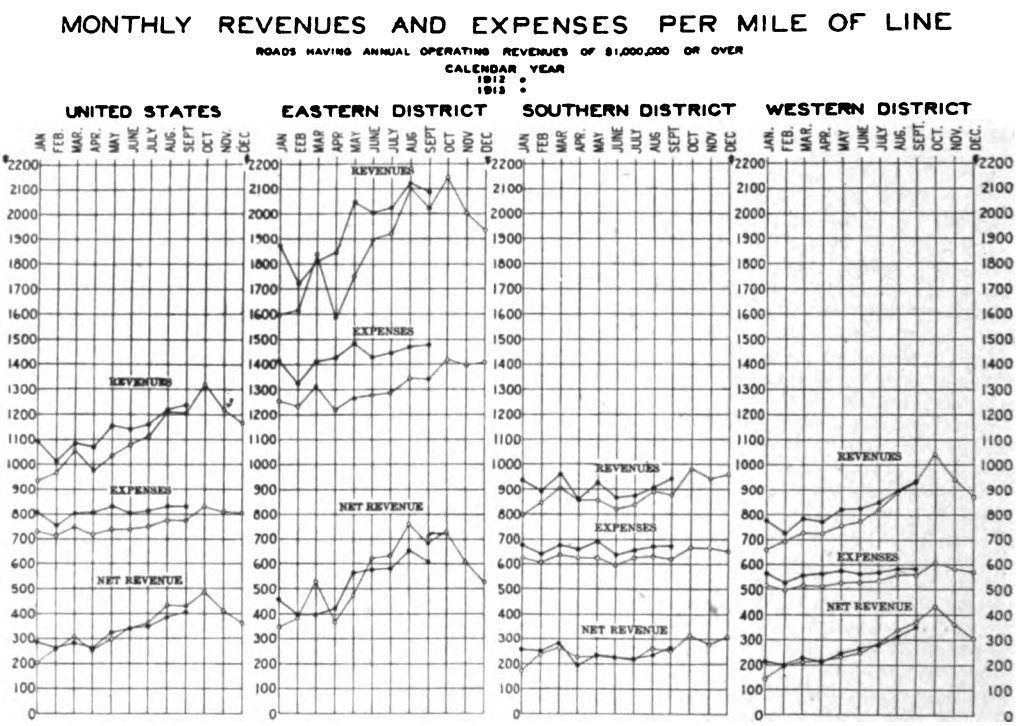
MONTHLY REVENUES AND EXPENSES PER MILE OF LINE
ROADS HAVING ANNUAL OPERATING REVENUES OF $1,000,000 OR OVER
CALENDAR YEAR
1912
1913
UNITED STATES
EASTERN DISTRICT
SOUTHERN DISTRICT
WESTERN DISTRICT
REVENUES
EXPENSES
NET REVENUE
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
$2200 2100 2000 1900 1800 1700 1600 1500 1400 1300 1200 1100 1000 900 800 700 600 500 400 300 200 100 0

The points on the vertical lines are alone of significance in showing the condition for the particular month. The lines connecting the points assist in tracing the change from month to month but do not indicate the trend during the month, nor are they cumulative for the period.

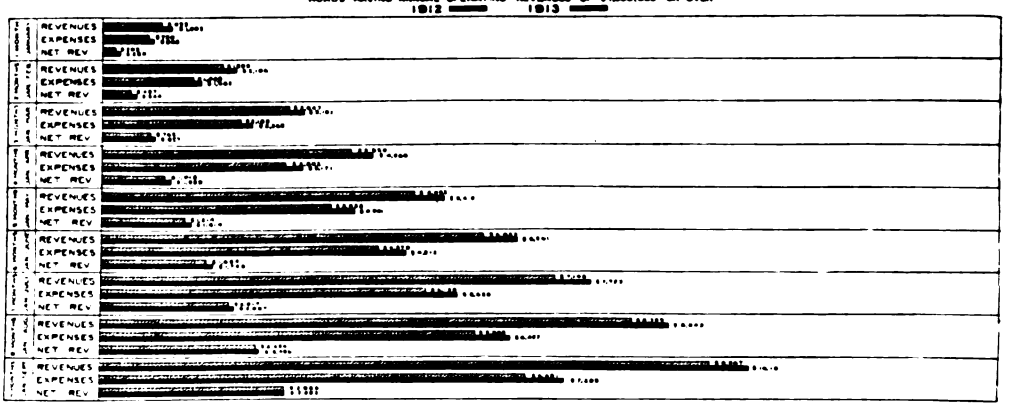
DIAGRAM COMPARING FOR THE INDICATED PERIODS OF THE CALENDAR YEARS 1912 AND 1913
CUMULATIVE REVENUES, EXPENSES AND NET REVENUE PER MILE OF LINE
ROADS HAVING ANNUAL OPERATING REVENUES OF $1,000,000 OR OVER
1912
1913
REVENUES
EXPENSES
NET REV

provisions are made for augmenting their net revenues.

The accompanying diagrams show the individual and cumulative monthly revenues and expenses per mile of line for the first nine months of the present calendar year as compared with those for 1912.

Condition of the Boston and Maine.

SAMUEL M. Felton, president of the Chicago Great Western Railroad, who was engaged by directors of the Boston and Maine Railroad to make a thorough investigation of the financial and physical condition of the property, has completed his report. In his report Mr. Felton says:

"The question is: Can the property earn enough to meet its fixed charges pending the completion of the program outlined? The situation is serious. The rate increases are absolutely necessary and should be secured at the earliest possible date. If the result does not re-establish the need of the company and make possible the refunding of the short term notes due in February and June and the procurement of the additional funds necessary to meet the recommendation in this report the prospects are to say the least discouraging.

"Every effort has been made to find a solution of this problem that would not involve an in-

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crease in rates without result. A careful study of the passenger traffic indicates clearly that much of it is being conducted at a loss and that in the aggregate it contributes but little beyond its share of operating expenses. What is earned toward the fixed charges and dividends is largely contributed by the freight business but this contribution as the reports disclose is entirely inadequate.

"The freight traffic, owing to the excessive service performed, is not yielding a sufficient return. No improvement in operating results is possible that would contribute anything of importance to meet the situation now confronting the property. The money must first be secured before it can be spent, and if all of the funds required were for the coming to-morrow the work in contemplation could not be done in time to reflect in the operations of the property within a year, and even then not in a sufficient amount to meet the situation that is now facing the Boston and Maine Railroad to-day.

"As pointed out all through the report no relief can be secured under existing conditions except through an advance in rates primarily. It is with regret that this conclusion has been reached."

Net Loss Recorded By Texas Roads.

H. G. Askew, statistician for the principal Texas railroads, has prepared a summary of business results for thirty-one Texas railroads, comprising about 90 per cent of the mileage of the state, for the three months ended September 30, 1913, as compared with the three months ended September 30, 1912.

The total operating revenue of these thirty-one lines of railroad for the year ended September 30, 1912, $28,889,344.25, and for three months ended September 30, 1913, the total operating revenue was $29,395,902.84, an increase of $500,558.59

The operating expenses for the three months ended September 30, 1912, was $20,997,892.07, and, for the three months ended September 30, 1913, the operating expenses were $22,396,245.88, an increase of $1,398,353.81.

Thus, while the income increased $506,558.59, the expenses increased $1,398,353.81.

There was a decrease of $891,795.22 in net operating revenue as compared with the three months of the previous year. In addition to the increase in operating expenses, taxes increased $204,668.61 over the corresponding three months of the preceding year, and rents, hire of equipment, etc., showed material increases.

The statement shows a net loss for the three months ended September 30, 1913, as compared with the three months ended September 30, 1912, of $1,487,735.54.

"When it is considered that the Texas railroads had a net loss of over $3,000,000 for the year ended June 30, 1913, the results for the first three months of the fiscal year beginning July 1, 1913, presents a grave situation," says the report. "The public of this age cannot successfully transact business without adequate railroad facilities, and it would seem that the railroads cannot indefinitely continue to furnish such adequate facilities at a loss and without a steady increase of their revenues commensurate at least with the increased expenses of operation."

Report of the National Railways of Mexico.

THE annual report of the National Railways of Mexico for the fiscal year ended June 30, 1913, shows some of the ravages of war, but does not of course reflect conditions to-day. The last five months probably have been harder on the road's earnings and equipment condition than the Madero revolution, but nevertheless in the twelve months ended with June 30 last 1,351 freight cars and 33 passenger coaches were destroyed, while the locomotive equipment was reduced by 15, the company having on hand June 30 but 18,492 freight cars, 553 coaches and 729 locomotives.

Gross income for the fiscal year was $57,370,282, Mexican, against $61,447,790 in the preceding year. Operating expenses were not proportionately lower, showing $36,243,946, against $38,453,254. The net revenue of $21,345,612 compared with $21,888,033, but the increase in the interest charges on the bonded debt increased $1,218,433, leaving a surplus of but $723,561 against $2,484,576 the preceding year and $4,527,830 in the year of the Madero uprising. The operating expenses were increased by maintenance of equipment, but the impracticability of repairing much of the right of way which was damaged, held down the expenditures for maintenance of way, lowering them from $11,340,034 in 1911-12 to $8,076,628 in 1912-13. The cost of conducting transportation increased from $15,435,621 to $16,102,979.

Operation

Greater Safety.

THERE is apparently no decrease in the spread of the greater safety movement which has now become such an important factor in railway operations. Not only do individual roads continue to attack this problem in a vigorous manner, but there has scarcely been an important meeting of operating officials within the past few months at which this subject, in some of its various phases, has not been discussed.

The movement is not alone confined to the railroads but is spreading throughout industrial concerns and devices are constantly been invented and applied to protect the employe from the operation of machinery, while at the same time, rules are being promulgated which in their application should greatly lessen the avoidable fatalities which have characterized railway operations for many years.

The safe way of doing a certain piece of work as compared with the unsafe way is being constantly emphasized and in this manner the men's attention is being sharply drawn to the foolhardy and unnecessary manner in which they perform some of their duties. For example, the latest issue of the "Safety Magazine" of the New York Central Lines, points out that one of the most frequent causes of accidents to railroad employes and one which often results in serious or fatal injury, is the practice of doing work between cars in an unsafe way. To quote from the magazine:

"Much has been said on this subject, but there

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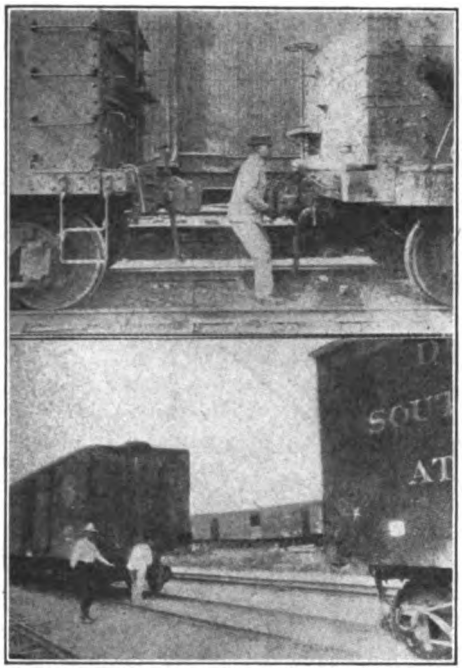


Two photographs illustrating the unsafe and safe way to conduct operations between cars. In the first photograph the cars are so close together that any backward movement of either would result disastrously.

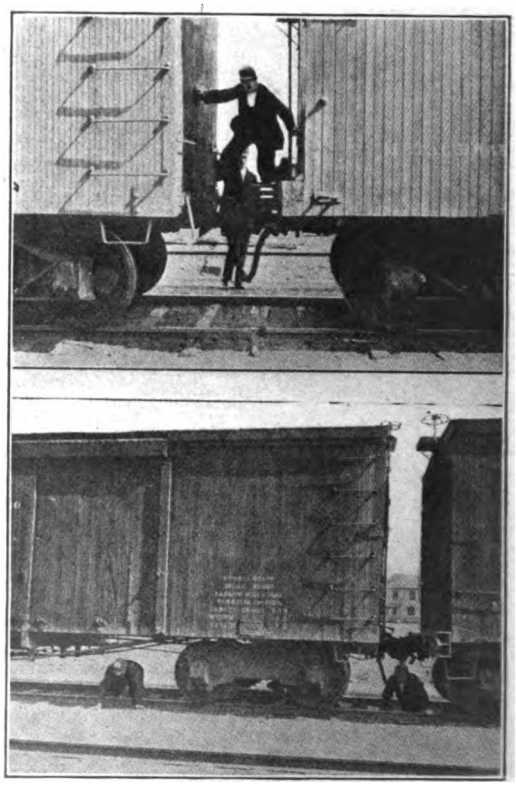
are still men who indulge in the practice, ignoring the advice that has been given, or else unthinkingly, carelessly, taking the chance. To those men who do this thing, thoughtlessly or otherwise, let these few words of warning awaken them to the seriousness of the risk they are taking. **Never go between moving cars for any purpose whatever.** If necessary to go between cars, stop them and **wait until they do stop.** If you don't someone may be reading your obituary before another week passes.

"In connection with this practice attention is particularly called to the pictures on the opposite page. There is also great risk involved where men attempt to do work between **standing cars that are too close together.** In the top picture, if the cars were to suddenly move from either direction, the man working there would be caught and seriously, if not fatally, hurt. He has left himself no chance to escape. The safer way is shown in the bottom picture where the cars are at least a car length apart and another member of the crew is standing by protecting the man between the cars. These are little measures of precaution that every employe should observe and do away with the chance of injury."

"Take the time to do it the safe way. It is the only way that is expected or required of you."

Trespassing on the railroads continues to occupy the attention of many operating officials and efforts are constantly being made to have effective laws passed or to instill into the minds of government officials the necessity for a more rigid enforcement of those laws already upon the statute books. The accompanying illustrations from the "Frisco Man" the official magazine of the Frisco Lines, speak for themselves and might be appropriately designated as gambling against eternity. These men are supposed to represent trespassers who, in crossing the tracks, often resort to the means illustrated. In order to save a few minutes' time in going from one side to the other they put themselves into a position to be instantly killed or lamed for life. It would appear that whether the person be a railroad employe or a trespasser and that no matter how important the duty of the other side of the track might be, is assuredly could not have been worth the risk taken.

One of the rather unusual developments in the safety movement has been the issuance of an order by the Illinois Central Railroad prohibiting employes engaged in operating trains, from affixing photographs to the faces or dials of watches, claiming that they distract the attention from their work which might cause accidents. Another point which has been taken up by the road in connection with the betterment of the time service, is a more rigid enforcement of the weekly comparison and efficiency tests to ascertain whether or not employes have in their possession all time weekly comparison cards. A permanent organization of the authorized local watch inspectors has ben effected and the question of establishing a uniform price for standard watch repairs is under consideration. No one but reliable watchmakers will be allowed to handle employes' watches.



The accompanying photographs show men who in desiring to cross the track, place themselves in grave danger of serious injury or death. An appropriate title for these pictures might be "Gambling Against Eternity."

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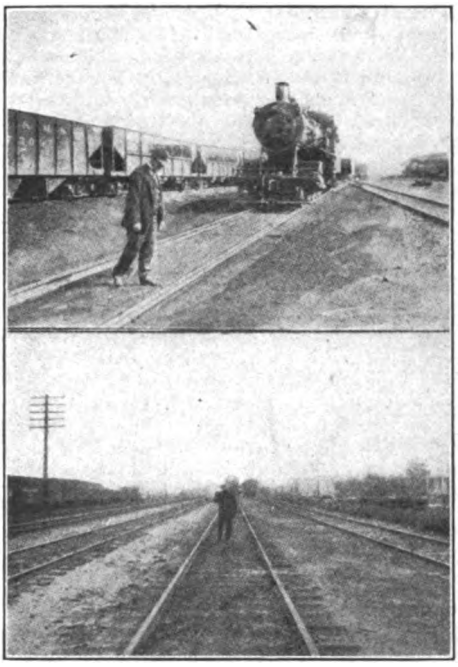


In the upper photograph a man is shown crossing the track in an inattentive manner. In the second, a man is shown walking with the current of traffic—an extremely unsafe practice.

The current issue of the "Employes' Magazine" of the Buffalo, Rochester and Pittsburgh Railway, contains several interesting photographs showing dangerous methods of operating and loading trains. The two herewith presented, show an overload on an engine tender and a dangerous method of loading lumber on flat cars. In the latter connection, it is pointed out that two trainmen were recently killed on one road as the result of this kind of loading.

In connection with the safety movement a rather unusual honor has been paid the Pennsylvania Railroad by a foreign government. This company has been awarded a bronze medal for its exhibit of devices for accident prevention and safety guards in general at the Exposition of Hygiene at Saxon, Germany. At the close of the Exposition, which was visited by 6,000,000 people, the managers requested the Pennsylvania's exhibit for the Museum of Safety at Berlin. This was the first non-Germanic exhibit to be placed among the permanent collections of the Berlin Museum, which is an imperial institution.

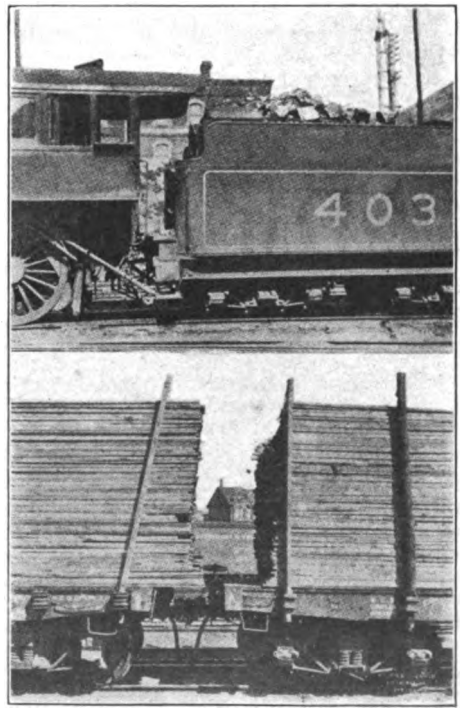
Direct appeal is being made by the Baltimore and Ohio Railroad to trespassers to refrain from walking on the tracks, under a plan which has been adopted by the maintenance of way forces in furtherance of a campaign to reduce the number of deaths and injuries to persons who have no business on or near railroad property.

When a trackwalker patroling the railroad in the interest of safety to the traveling public, or a section foreman, foreman of a track gang or one of his workmen meets a person tramping along the tracks, whether he be a confirmed hobo or mill employe, it is the duty of the railroad man to point out the danger which lurks behind this careless practice. And this appeal to the intelligence of the transgressor is backed up by information as to the number of lives that are sacrificed and the permanent injuries that occur each year as a result of people using the railroad right of way as a public highway.

This method of calling attention to the danger of trespassing on railroad property was inaugurated under the "Safety First" policy of the Baltimore and Ohio management. For some time past the company has waged a vigilant warfare against trespassing, through the officers of its police department; who are instructed to make arrest and the campaign has also been extended to an education of school children and other members of communities, but heretofore there has been no plan for coming in contact with the actual violators of the rules against trespassing.

The maintenance of way department has a representative on the safety committees of the company, and through these officials the men at work on the tracks are informed concerning accident statistics. Already there has been an appreciable reduction in the number of deaths and serious injuries, the Claims Department of the road attributing this in large measure to the efforts of the track forces in calling attention to the dangerous practice.

The Southern Pacific in its safety efforts on the Pacific Coast, points out that within the past twenty months in California there have been on country roads twenty-six lives lost and thirty-two persons injured in accidents at railroad crossings that could have been avoided had the drivers used due caution. This statement is made by railroad companies after getting stat-



Two examples of unsafe loading. An engine overloaded with coal and lumber stacked over the ends of flat cars. Two trainmen were recently killed on account of a loading of this character.

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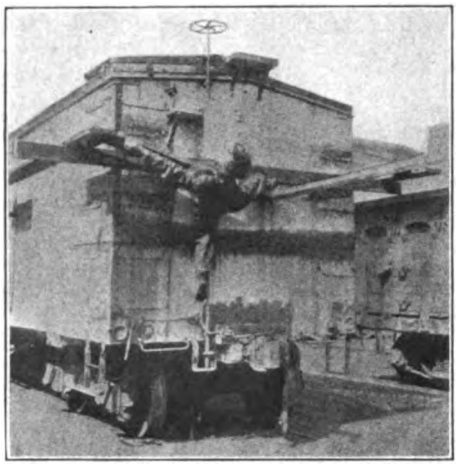


LACK OF INSPECTION OF PLANK CAUSED THIS ACCIDENT.

istics from special observers and from citizens in the communities who were serving on boards of inquiry.

The figures exclude city streets, where rush of traffic and noise may have been contributing factors. Neither do they include cases where persons were "joy-riding" or the drivers intoxicated.

The railroad companies are calling upon automobile men and others to help in accident prevention. On this subject, the Chicago "Tribune" in an editorial, recently said:

"When pedestrians are about to cross a city street, they ought to halt, look both ways, and when sure the road is clear, go ahead. When they fail to do this and get run over, automobilists say: 'Why did they not look before they left the sidewalk? We blew our horns. Why did they not take notice?'

"Cannot railroad officials say with some justice when trains hit automobiles, 'Why did not they look right and left before making the crossings? Our whistles blew; why did they not listen? When a street car comes by a grade crossing the conductor looks to see that all is clear. why not automobiles?

"A train does not come on one with the stealthy approach of an auto.

"Automobile Clubs might well advise their members—to do at railroad crossing what they say pedestrians should do at all street crossings—avoid 'contributory negligence.'"

Watchmen stationed by the Southern Pacific Company at crossings in San Francisco, found that seventy per cent, by actual count, of all auto drivers at crossings with railroads fail to look to right or left. Similarly in Stockton, out of 4,080 pedestrians only sixty looked up and down the tracks before crossing.

An official circular just issued by Mr. Howard G. Kelley, vice-president of the Grand Trunk Railway System, shows the earnest manner in which that system is endeavoring to prevent personal injuries to patrons and employes.

This circular is the result of an exhaustive study of the personal injury problem on the Grand Trunk by Mr. George Bradshaw, an expert Safety Engineer, who was engaged some time ago to study conditions and inaugurate the "Safety First Movement."

Safety committees composed of the local officers and one or more employes from each branch of the service, are organized on each operating division and in the principal shops and terminals, there being about 500 members of such committees. These local committees are directed to meet at least once a month, employes being allowed their necessary expenses and compensation for any time taken from their regular duties on account of committee work.

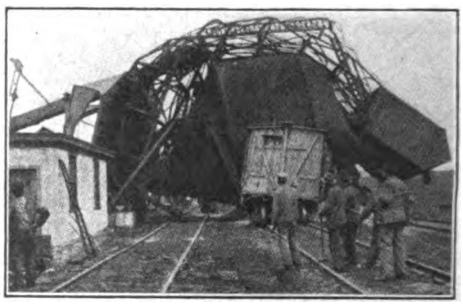
The purposes of the safety organization as stated by Mr. Kelley are: the correction of unsafe conditions and practices before an injury has resulted, and the investigation of accidents which may occur with a view to discovering the causes thereof and applying corrective measures, where possible, to prevent a recurrence.

It will be the duty of members of safety committees as they go about their regular work, to note unsafe conditions. Most railroad accidents are caused, not by collisions, derailments and wrecks, but by conditions and practices of an unsafe nature, which can to a great extent be overcome by thinking about prevention before instead of after an accident has happened.

A Steel Coal Chute Wreck on the Wabash.

AN unusual wreck occurred on the Wabash Railroad at Fort Wayne, Ind., on November 22nd, in which a steel coal chute was practically demolished. It happened in the following manner: A train while pulling off from a lead track under the chute, derailed a steel box car at the switch which was about fifty feet from the chute. As the train was not stopped instantly, this car sprung far enough from the rails to strike the chute with the results shown in the accompanying photograph.

An investigation showed that the track at the point of the accident was about three-quarters of an inch too wide and that there was no elevation of rail on the curve. A fact which doubtless contributed to the derailment, was that the side bearings of the car causing the mischief were, upon examination, found locked sideways and evidently had been so for some time.



From the *Railway and Engineering Review.*

A PECULIAR WRECK AT FORT WAYNE, IND., CAUSED BY DERAILMENT OF BOX CAR.

The Car Situation.

THE latest report of the American Railway Association shows that on November 15th, there was a total car surplus of 46,059 compared with 38,276 on November 1st, and 19,897 on November 7, 1912. The shortages for the same dates were 23,407 cars on November

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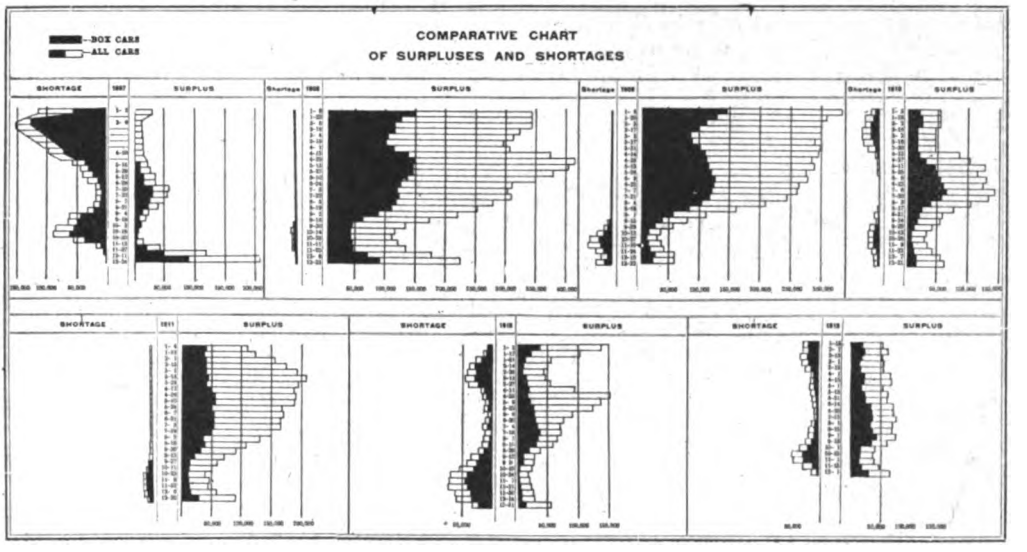
15th, 40,118 on November 1st and 71,156 on November 7, 1912. In other words, the net surplus on November 15th of the present year was approximately 23,000 cars as compared with the net shortage on November 7, 1912, of over 50,000 cars. This difference is large enough to be unusually significant and indicates a serious falling off in freight movement as compared with last year.

The following diagram presents a record of the monthly surpluses and shortages for a period of seven years:



A Record Trip from Washington to New York.

THE recent Sayre-Wilson wedding at Washington was responsible for a record railway trip between that city and New York. A special train over the Baltimore and Ohio Railroad on the night of the wedding carried the photographs of the wedding party to certain New York newspapers and in so doing, shattered every time record made heretofore between these two points.

The combined efforts of the newspaper men and railroad officials made such results possible, which briefly stated, were that four hours to the second after the train left the Washington Union Station it was standing in the Jersey City Station, having consumed three hours, forty-eight and one-half minutes in actual running time, the quickest time ever made between the two points; and exactly four hours and forty-five minutes after the shutter of the camera closed in the White House, the photographic results were on the presses in "The American's" composing rooms in New York.

Outside the White House an automobile waited for the newspaper photographers who as soon as they entered it started the preliminary work of developing the plates, finishing the job in a studio, specially arranged, before they left for New York; so that when the special train pulled out the enlargements of at least a dozen photographs of the wedding party were spread out to dry during the four-hour run.

Meantime the railroad officials arranged for the special train, and no plans were ever worked out with more exactness or in greater detail. A schedule taking into account every second was hurriedly prepared.

Four minutes from the time the train left the Washington station the special was making sixty miles an hour. In the next minute it was making a 65-mile gait and was kept on this schedule to Baltimore, which was reached at 8.45. The train slowed down to thirty miles an hour through the Baltimore terminals.

The train reached Philadelphia at 10.25 covering the distance from Washington to that city of 138 miles in 135 minutes. The run from Philadelphia to Jersey City was equally as fast and with the exception of the slowdowns which were made necessary by passing through the larger cities, the running time between Washington and New York approximated 65 miles an hour.

A Suggested Plan for Joint Car Ownership.

NEWMAN ERB, president of the Minneapolis & St. Louis, the Ann Arbor and the Denver & Salt Lake railroads, has issued a statement of a plan of freight car ownership, which he has devised, and which he believes would solve many of the problems that now arise in car distribution. Mr. Erb proposes a federation, or association, into which the railroads of the United States would contribute a certain amount of cash each year, the money to be used for buying cars for interstate business. The amount to be paid by each line would be calculated on a ten-mile basis until about $25,000,000 has been raised. With $25,000,000 for a beginning, the purchase of $100 000,00 worth of cars would be negotiated, the federation to issue certificates for $75,000,000, behind which all the roads that were members would stand. Following the distribution of this equipment upon a tonnage basis, a road would be privileged upon an order of the federation, to deliver a certain number of Pennsylvania cars to the Michigan Central, for illustration, if the latter did not have

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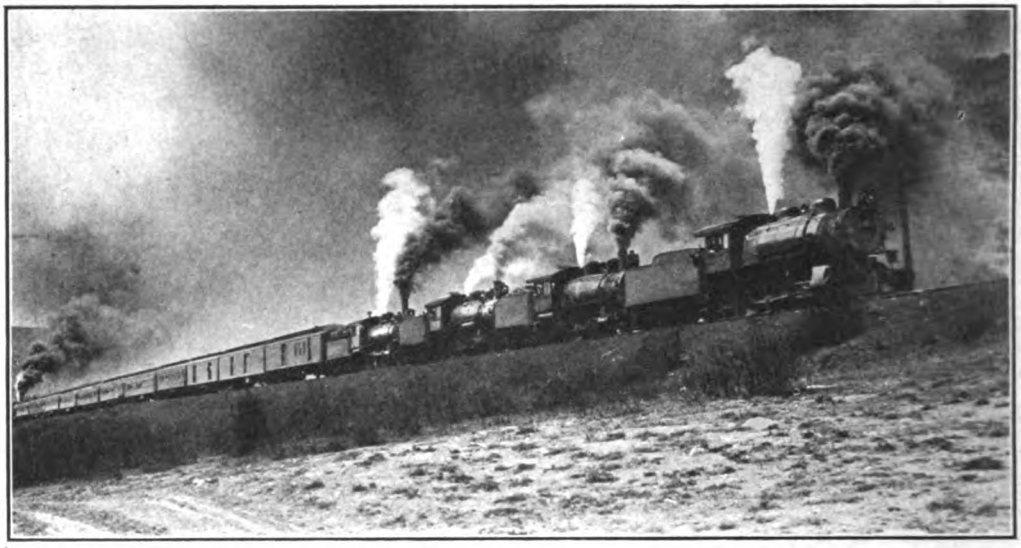
its full quota and was in actual need of them. The scheme does not propose a reduction or abandonment of the present per-diem penalty of 45 cents for the detention of foreign cars. On the contrary its continuance is required and the aggregate from this source, it is estimated, would be about $40,000 a day. This is to be used as a fund for gradually wiping out the equipment trust certificates, after the accomplishment of which there would remain a paid-up capital of $25,000,000 and the railroads would have cars worth $100,000,000 with which to carry on their interstate traffic.

Completion of Denver and Rio Grande Improvement Over Wasatch Mountains, Utah.

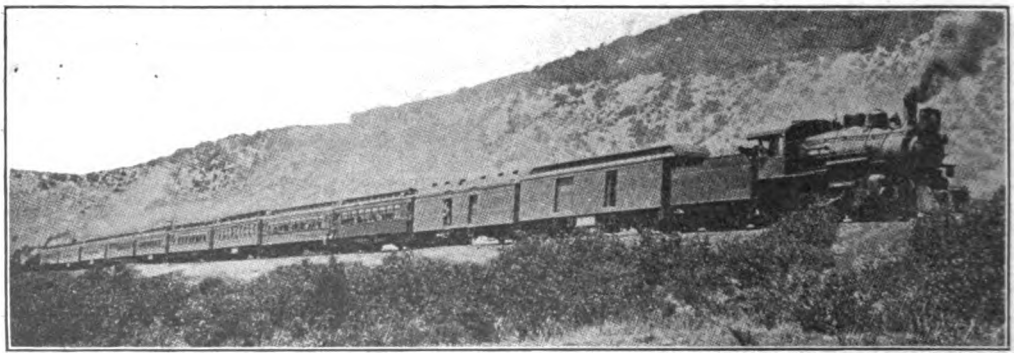
ATTENTION was called in the May issue of the RAILWAY WORLD to the important piece of reconstruction work being done by the Denver and Rio Grande Railway on the grade between Soldier Summit and Tucker, Utah. This new double track has now been put into operation and has replaced the old four per cent line with one of a two per cent maximum. The old four per cent grade was the heaviest on the main lien of the Denver and Rio Grande, so that the improvement greatly facilitates the movement of both passenger and freight trains.

Soldier Summit lies on the main line between Denver and Salt Lake City at the crossing of the Wasatch Mountains at an elevation of 4,445 feet. The new piece o froad has a 255-foot tunnel numerous concrete arches instead of bridges, and its length between Soldier Summit and Tucker is fifteen instead of seven miles long. It has permitted, however, a reduction of grade, as previously referred to of from four to two per cent, or 105½ feet to the mile.

What this means in train movement is shown by the accompanying photograph, illustrating a train ascending the four per cent grade with four engines pulling eleven cars and an additional engine acting as pusher. With the completion of the new line the six helper engines at Tucker with the necessary roundhouse and engine facilities and the station force, were eliminated as the one helper engine which is now put on at Thistle is able to



DENVER AND RIO GRANDE PASSENGER TRAIN CLIMBING FOUR PER CENT GRADE, SOLDIER SUMMIT, WASATCH MOUNTAINS, UTAH, BEFORE IMPROVEMENT, REQUIRING FIVE ENGINES.



DENVER AND RIO GRANDE PASSENGER TRAIN CLIMBING TWO PER CENT GRADE, SOLDIER SUMMIT. WASATCH MOUNTAINS, UTAH, AFTER IMPROVEMENTS, REQUIRING BUT TWO ENGINES.

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assist a tonnage train to the Summit. The complete air testing plant with car repairers and inspectors at Soldier Summit will also be unnecessary as now only the regular tests of air are made before descending the grade. This eliminates a past average detention of one hour to all freight trains westbound which item alone is estimated as amounting to approximately $2.47 per train for the dead time of train and engine crews. A second picture is herewith included illustrating the manner in which the trains are now handled on the two per cent grade.

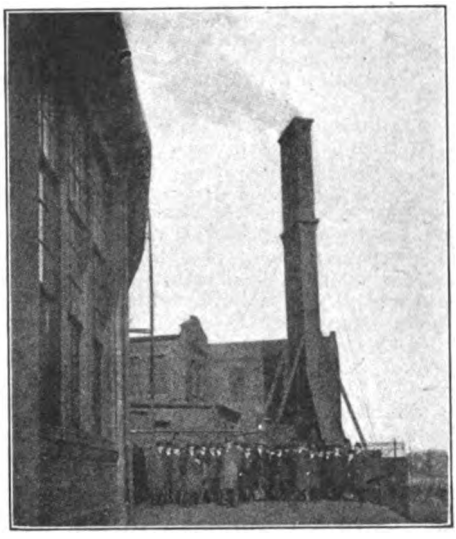
Successful Experiment in Smoke Washing.

THE "Age Gazette" presented an interesting account in its issue of November 28th, of an installation made by the Lake Shore and Michigan Southern, of a smoke washing system in the new thirty stall engine house at Englewood, Chicago. The illustration shows it in full operation, handling the smoke from twenty-two engines about ten of which had green fires.

The smoke from the engines discharges into Dickinson cast iron telescopic smoke jacks which fit over the stacks. A damper is provided in each jack which provides a means for regulating the draught on the engine while in the engine house and also allows the draught to be shut entirely off when it is not desired to use the jack. The draught is obtained by a special 78-inch steel plate fan.

The smoke duct, supported on the roof timbers of the engine house, is of circular section, made of asbestos board and discharges into a 48-inch pipe that leads to the fan. The smoke duct on the discharge side of the fan delivers the smoke to three smaller ducts that lead to separate compartments in the washing tank. As the tank ends of these ducts deliver below the water level, the water backs up some ten or fifteen feet in the ducts. A steam jet is placed in each duct to agitate the water so that the smoke and the water will be thoroughly mixed.

This mixture passes into the tank compartments and the free gases are caught in chambers from which they are forced back into the water as the pressure builds up and are finally liberated, after the solid matter has been completely taken out by the water, to a wooden stack 65 feet high.



THE SMOKE WASHING PLANT OF THE LAKE SHORE RAILROAD AT ENGLEWOOD, ILL.

The residue left from this washing process is made up of the following constituents:

Carbon	82.6 per cent
Sulphur	2.6 per cent
Moisture	3.9 per cent
Iron Oxide	8.7 per cent
Silica	1.8 per cent
Calcium and Magnesium Oxides	0.4 per cent

This residue will float on the water and is removed each day, about ten barrels per day being obtained when the plant works at its average capacity, which is about 95 engines. All parts coming in contact with the water, which contains a large amount of sulphurous acid, are painted with a tar paint.

TRAIN ACCIDENTS IN OCTOBER.

The following list constitutes a record of the more important train accidents that occurred on the United States railways during the month of October:

COLLISIONS.

Date.	Road.	Place	Kind of Accident.	Kind of Train	Kil'd.	Inj'd.
2	St. Louis Southwestern	Stephens	bc.	F. & F.	4	3
2	Yazoo and Mississippi Valley	Hollywood.	bc.	P. & F.	1	1
3	New York, Chicago and St. Louis	Fairview, Pa.	bc.	F. & F.	2	1
6	Baltimore and Ohio	Summerfield	rc.	P. & F.	2	2
*5	Great Northern	Ulm, Mont.,	rc.	F. & F.	2	0
9	Southern	Grand Junction	rc.	P. & F.	1	18
†10	New York, New Haven and Hartford	Westfield, Conn.	bc.	P. & P.	1	10
20	Pennsylvania	Portville, N. Y.	xc	F. & F.	2	3
22	Seaboard Air Line	Gaston, S. C.	bc.	P. & F.	0	15

DERAILMENTS.

Date.	Road.	Place.	Cause of Derailmn't.	Kind of Train	Kil'd.	Inj'd.
2	Pennsylvania	Garland, Pa.	b. rail	P.	0	7
8	Chicago, Milwaukee and St. Paul	Ingomar	beam	P.	0	20

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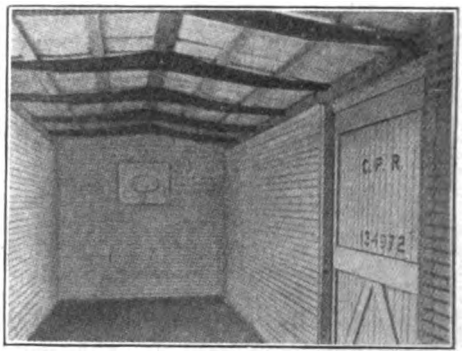
10	C. C. C. and St. L.	Columbus	acc. obst.	P.	2	0
12	Atlantic Coast Line	Live Oak	exc. speed	F.	1	3
†13	Mobile and Ohio	State Line	unx.	P.	17	90
19	Atlantic Coast Line	Green Pond	malice	P.	1	4
19	C. C. C. and St. L.	Tiffin	.....	P.	0	28
19	Chicago and Alton	Alton, Ill.	d. track	P.	0	15
27	Southern	Easley	.. ....	P.	1	3
31	Texas and Pacific	Alexandria	malice	P.	0	4

rc,Rear collision——bc, Butting collision——xc, Other collisions——b, Broken——d, Defective——unf, Unforeseen obstruction——unx, Unexplained——derail, Open derailing switch——ms, Misplaced switch——acc. obst., Accidental obstruction——malice, Malicious obstruction of track, etc.——boiler, Explosion of locomotive on road——fire, Cars burned while running——P. or Pass., Passenger train—F. or Ft., Freight train (including empt engines, work trains, etc.)——Asterisk, Wreck wholly or partly destroyed by fire——Dagger, One or more passengers killed.

Mechanical

Inside Sheathed Steel Frame Box Cars.

AT the annual meeting of the American Society of Mechanical Engineers, held on December 3, R. W. Burnett, general car builder of the Canadian Pacific Railway, read an interesting paper on inside sheathed steel frame box cars. The author stated that the Canadian Pacific designed its first box car of this character in 1908. This car avoided the disadvantage of the outside sheathed car, obtained a further reduction in weight and provided for cheapness of maintenance by the use of steel superstructure without the additional lumber required by the outside sheathed car. With practically no preliminary experimenting 500 of these cars were built and since then over 30,000 have been built similar to the first cars, with the exception of certain refinements of detail which have tended to reduce weight and simplify construction.



INTERIOR VIEW OF CANADIAN PACIFIC'S STEEL FRAME BOX CAR WITH CORRUGATED METAL SHEATHING.

Mr. Burnett holds that the steel frame inside sheathed car has several advantages over the types previously used, notably in that the tare is low in proportion to the capacity. The weight is from 1,000 to 5,000 pounds less than other cars and in addition to less dead weight to haul when the car is empty or partly loaded, it permits of a heavier loading of the car.

CANADIAN PACIFIC'S CORRUGATED STEEL FRAME BOX CAR.

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Referring to the employment of corrugated steel lining in the construction of cars of this character, Mr. Burnett stated that in the summer of 1911 the Canadian Pacific lined a steel frame box car with corrugated steel and found it to be as simple a matter as lining with wood. After eighteen months of general service, this car was brought in and on examination found to be in as good shape as when constructed, the paint sealing the joints where the side sheets lapped was in no place broken, indicating that there was no material weaving or deflection of the sides.

A Notable Consignment of Cars for the Grand Trunk.

THE Grand Trunk Railway system has recently added to their equipment, a large number of steel cars of improved design, including several thousand all steel hopper cars, two thousand frame box cars and two hundred and fifty steel underframe automobile cars. Illustrations of the box and automobile cars are herewith presented.

The two thousand box cars which as indicated, are of steel frame construction and have a capacity of 60,000 pounds each were manufactured by the Pressed Steel Car Company at their McKees Rocks works. These cars have steel under and upper frames and carlines with wooden floor, roof and sheathing. The body bolsters are built integral with underframe and are made of four pressed steel diaphragms and one cast center brace reinforced at top and bottom with cover plates. The underframe is further strengthened, transversely, by two cross bearers made of pressed steel diaphragms. The cars are equipped with Westinghouse air brakes, cast steel couplers, vertical twin spring draught gear with key attachment to couplers, roller side bearings, inside metal roof and all safety appliances in accordance with Interstate Commerce Commission's requirements.

The sixty-pound capacity automobile cars which were built for this company by the Western Steel Car and Foundry Company at its Illinois plant, have a steel underframe of the structural type composed of plates and shapes except for the bolster and cross bearer diaphragms which are pressed steel. The superstructure is of a wooden type with diagonol tie rods in the side and each side is fitted with double side doors set off center and one end fitted with double hinge and doors

TWO STRIKING EXAMPLES OF MODERN FREIGHT CAR EQUIPMENT. PART OF AN ORDER OF 2,000 BOX CARS RECENTLY PURCHASED BY THE GRAND TRUNK RAILWAY.

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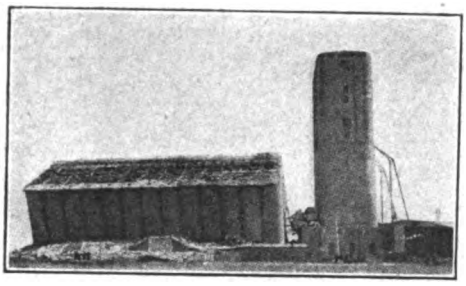
with a vertical operated locking device. The roof is of the inside metal type and the car is braced longitudinally by diagonal braces fitted into the side plates and carlines near the center of the car.

Foundation Failure of Canadian Pacific's Grain Elevator.

THE Canadian Pacific's new grain elevator at Transcona, Canada, met with an unusual foundation failure recently, due to the crushing of the material under one side of the structure permitting it to settle as indicated in the photograph. This occurred on October 18th, when the elevator was practically full. A sliding movement was noticed about eleven o'clock in the morning and by one o'clock in the afternoon the bin house had settled about one foot and the ground for a distance of about thirty feet on three sides of the bin house, had risen from four to five feet. The building continued slowly to settle until noon of the following day when the angle reached was 28 degrees from the vertical, the base at the east end of the structure being about five feet above the former level, while the base at the west end was about thirty feet below the surface. It is stated that the use of the elevator cannot be resumed until the bins have been reconstructed or moved back in their normal position. A remarkable feature of the accident is that the headhouse remained undamaged.



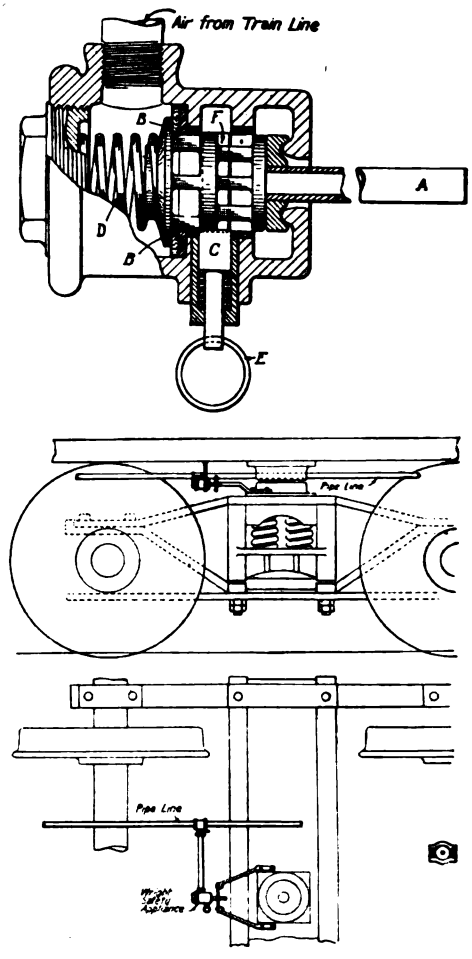
CANADIAN PACIFIC'S GRAIN ELEVATOR AT TRANSCONA, AFTER FAILURE OF FOUNDATION.

A New Safety Air-Brake Appliance.

A NEW automatic train stop designed to operate under conditions in which there results an abnormal movement of the trucks with relation to the car body, has been perfected and put on the market by the Wright Safety Air Brake Appliance Company, of Greensboro, N. C.

A device of this character is meant to be of service in setting the brakes in case of any of the various defects to trucks or track construction involving the derailment of one or more pairs of wheels. These include broken or spreading rails, obstructions on the track such as dropped brake shoes or beams, broken wheels, flanges or axles and any other forms of truck derangement which may tend to the derailment of the wheels and thereby cause the wreck of one or several cars.

The accompanying illustration shows the device in detail as well as its method of application. In effect, it is simply a release valve so



METHOD OF APPLICATION OF THE WRIGHT SAFETY AIR BRAKE APPARATUS.

that a reasonable movement of its protruding stem A unsets the valve at BB allowing the air to escape from the train line and thus applying the brakes. When the disc has been removed from the valve set at a sufficient distance, the latch C springs into place, holding the valve in the open position which is important in case either the stem or its operating yoke becomes broken through excessive dislocation of the truck. The interference with the stem being removed, the valve assumes its closed position on pulling out the latch C for which purpose the ring E is provided.

A Remarkable Test of Chrome Vanadium Wheels.

THE Standard Steel Works Company has recently completed part of an order for four hundred heat-treated chrome vanadium steel rolled wheels to be placed by the Grand Trunk Railway on the tenders of fifty Mikado locomotives having a capacity for 9,000 gallons of water and fifteen tons of coal and a weight under full load of 172,000 pounds. This gives

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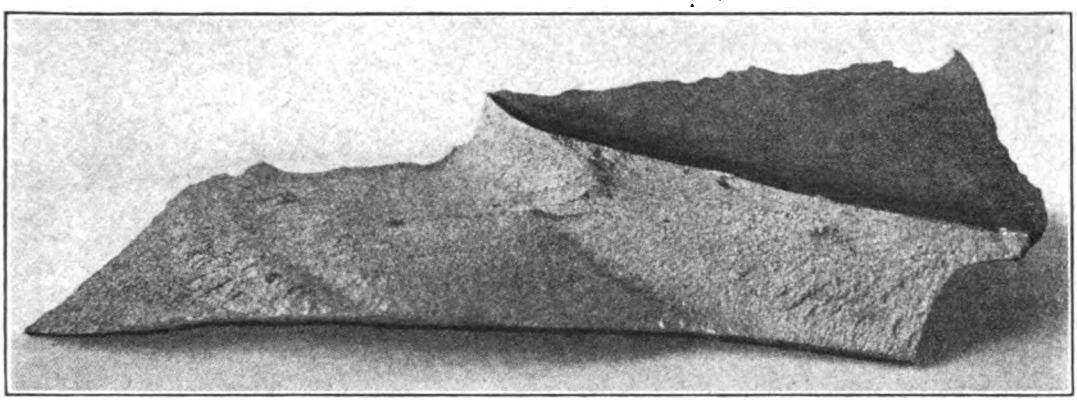


From the *Railway and Engineering Review.*

A FRAGMENT OF BROKEN CHROME VANADIUM STEEL, SHOWING TOUGH FIBROUS STRUCTURE OF THE METAL.

an average load per wheel on rail of 21,500 pounds.

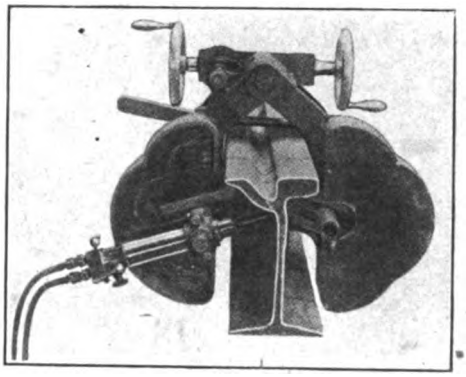
In order to most thoroughly determine the strength and toughness of this type of wheel, severe drop tests in addition to the usual physical tests and chemcal analyses were made of wheels selected at random. As these are the first tests of this character ever made of wheels of this kind, the results are of especial interest as data for record.

The wheels were made from two fifty-ton heats of acid open hearth steel. One wheel from each heat was tested, and the results were found to be remarkably uniform. It was the original intention to test three wheels under the drop; one in running position, one with the concave side of the plate upward and one with the convex side of plate upward. In the first test the wheel made from heat 9686 was drop tested in a horizontal position and to the point of destruction. In this test, though twice reversed, the wheel withstood a total of 1,254,000 foot-pounds before cracking or breaking. It was first placed under the drop with the concave or dished face of the plate up, in which position it offers least resistance to a blow or thrust. In this position it withstood without fracture or even deflection, the following blows from a 2240-pound tup dropping on the face of the hub and equivalent to a total of 515,200 foot-pounds of energy; one blow each at 5, 10, 15 and 20 feet, and six blows at 30 feet. It was then reversed, with the convex side up, or in the position of its greatest resistance to side thrust. In this position it was subjected without failure to ten blows from a height of 30 feet, equivalent to 672,000 foot-pounds. Following this the wheel was again reversed to its original position and given one blow at 30 feet, at which it finally broke in four pieces. The illustration of one of the broken pieces shows the tough, fibrous structure of the metal.

Cutting Rails by Oxy-Acetylene Method.

THE Davis-Bournonville Company, New York, has recently developed the oxy-acetylene rail-cutting machine shown in the accompanying illustration and known as the "railagraph." It can be used on a rail in position in the roadbed. The machine consists of a stand which is clamped on to the rail, and on each side of the rail a bracket is provided in which the cutting torch can be mounted. This bracket is secured to a slide which is moved by a roller held in contact with a cam by a tension spring. Different forms of cams are provided for cutting different styles of rails.

The machine is driven by the small hand-wheels at the top and as these are rotated the torch is made to travel over the rail, the cam and slide arrangement holding the end of the torch about 1/8 inch from the work. In operation, the torch is first applied at one side of the rail and fed over the line on which it is to be cut, one half



DEVICE EMPLOYED FOR CUTTING RAILS.

of the base, the entire web and one half of the rail surface being cut by this operation. The torch is next removed from the holder, and mounted at the opposite of the rail, it is passed over the work a second time in order to cut the remaining halves of the base and rail surface. During a recent exhibition a 9-inch girder rail was cut off in three minutes, with a consumption of two cubic feet of acetylene and 5½ cubic feet of oxygen. A comparison between this time and the time required to cut off such a rail with a hand hacksaw will readily show the desirability of using the equipment for work of this kind. The standard Davis-Bournonville machine cutting torch is used on this machine, except that for rail cutting the torch is made about two inches shorter than the standard dimension. Oxygen is used at a pressure of 50 pounds per square inch.

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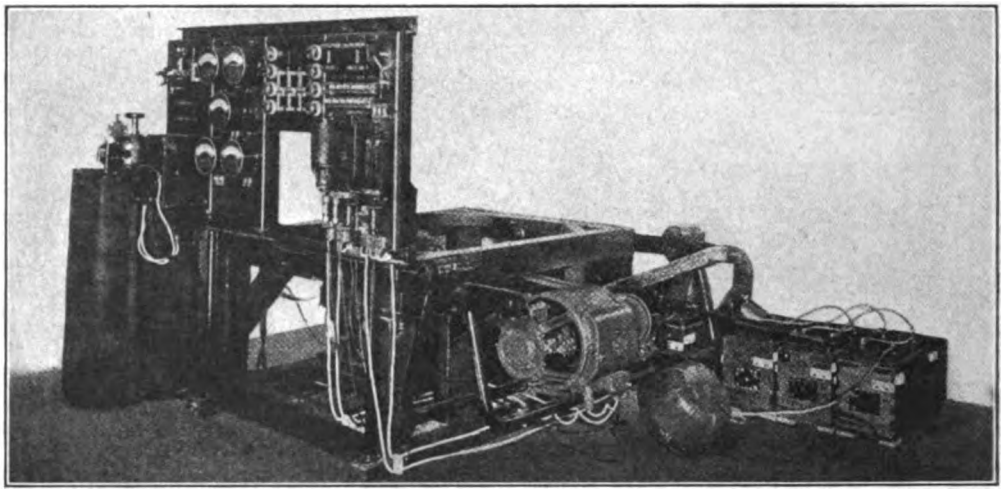


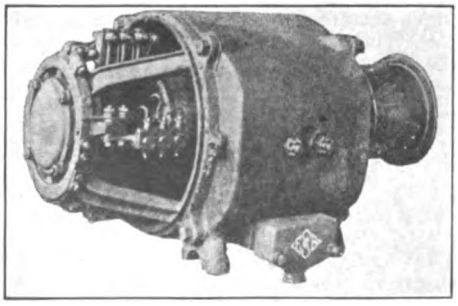
CONSTANT VOLTAGE AXLE LIGHTING EQUIPMENT ARRANGED FOR DEMONSTRATION PURPOSES.

A New Axle-Lighting System.

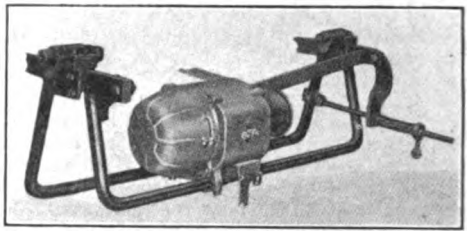
A NEW axle-lighting system to be used in connection with the electric lighting of railway trains has been put on the market by the Electric Storage Battery Company of Philadelphia. In many respects this system constitutes a radical departure from previous practice. The dynamo mounted in the usual method is of the Rosenburg type which has been extensively used abroad for this purpose. The main field excitation is produced by armature reaction due to current flow between a pair of short-circuited brushes. This flow of current is produced by a small primary field excitation at right angles to the main field excitation. The constant voltage characteristic of the machine is obtained by connecting the primary field winding across opposite corners of a Wheatstone bridge; the other two junction points of the bridge being connected across the main terminals of the machine. The bridge is composed of fixed resistance in two diagonally opposite branches and in the other two branches resistance of high temperature coefficient, such as the so-called iron wire "ballasts." It is claimed that this system eliminates practically all of the automatic apparatus found in other axle systems.

When the car is standing there is no discharge whatever from the battery for the excitation of so-called teaser coils, or for any other purpose, provided the lights are turned off. The equipment can, therefore, stand for many weeks without the battery losing its charge and can, therefore be put into service immediately after such a period of idleness without further attention.

The first of these equipments to be put into actual service was installed on a car of one of the Western trunk lines in November, 1912, and has been in continuous service ever since. As a result of the operation of this equipment the railway in question has ordered 62 equipments of this type which are now about to be put into service. During the year of operation the equipment, it is asserted, has shown the following remarkable performance: No light failure; no delay to car service on account of axle lighting equipment; no repairs to dynamo (except replacing of a defective ball bearing, these bearings being smaller than present standard); no removal of dynamo from car; no charging of battery, except that given by axle-dynamo en route; no change in adjustment of controlling apparatus.



THE DYNAMO OF THE ELECTRIC STORAGE BATTERY COMPANY'S NEW AXLE LIGHTING SYSTEM.



METHOD OF INSTALLATION.

A New Scoop Car for the Norfolk and Western.

THE Norfolk and Western has recently designed and built a scoop car to be employed in removing earth and rocks which, as the result of slides, often block the right of way. As the accompanying illustration shows, the car is, in effect, a wooden flat car having a heavy wooden roof supported on steel frame work. The scoop which is of ten cubic yards capacity, is handled by a twenty-five- ton revolving jib crane

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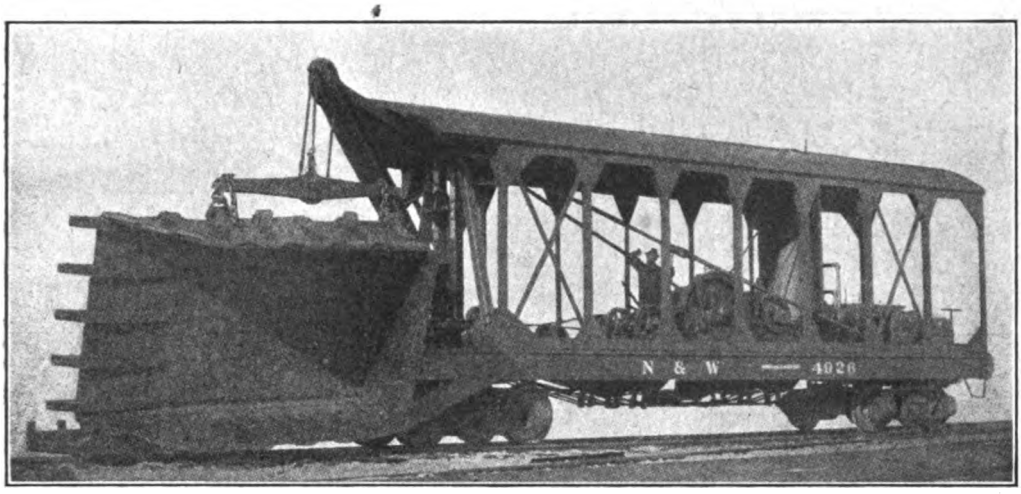
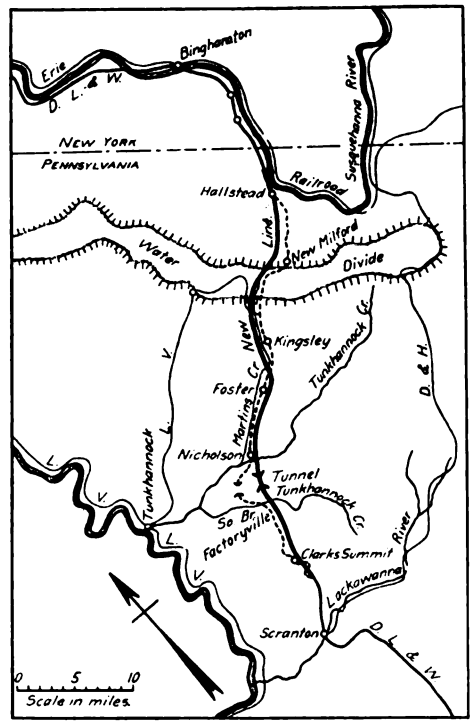


A NEW SCOOP CAR RECENTLY DESIGNED AND BUILT BY THE NORFOLK AND WESTERN RAILWAY.

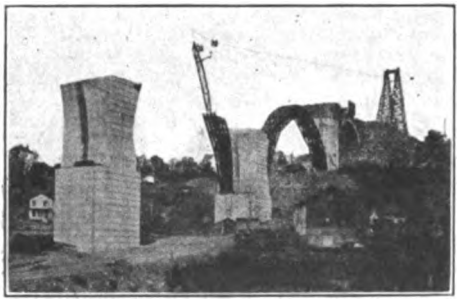
mounted on the forward end of the car. The engine is of the Lidgerwood hoisting type being especially designed for this purpose and having a lifting capacity of 17,000 pounds at a speed of thirty feet per minute. A single locomotive is employed in driving the scoop into the bank of material, the speed, when striking, being from six to ten miles per hour. This usually fills the scoop about three fourths full, permitting the removal of about seven cubic yards of material at each impact. In train service or in carrying the scoop a long distance, it, and the cradle, are fastened together and the entire outfit raised by the crane and loaded on an adjacent flat car and the two cars then coupled together.

The Largest Concrete Arch Bridge in the World.

THE Delaware, Lackawanna and Western Railroad is building a cut-off between Clarks Summit, Pa., and Hallstead, by replacing 40 miles of line between these points at an approximate cost of $12,000,000. The most notable feature of this work is the bridge construction which includes two concrete viaducts, one over Tunkhannock Creek and the other over Martins Creek, the former requiring about 167,000 yards of concrete and the latter 78,000. Minor structures of this character which number about eighty, will require 155,000 yards.

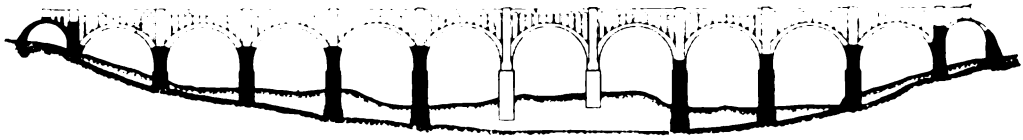


Location of New Cut-Off Between Clark's Summit and Hallstead.



FIRST SECTIONS OF FALSE WORK TRUSSES.

The viaduct over Tunkhannock Creek will represent, when completed, the largest concrete arch bridge in the world. It will be 300 feet high from parapet to foundation and will have a length



SHADED PORTIONS INDICATE COMPLETED PORTIONS..

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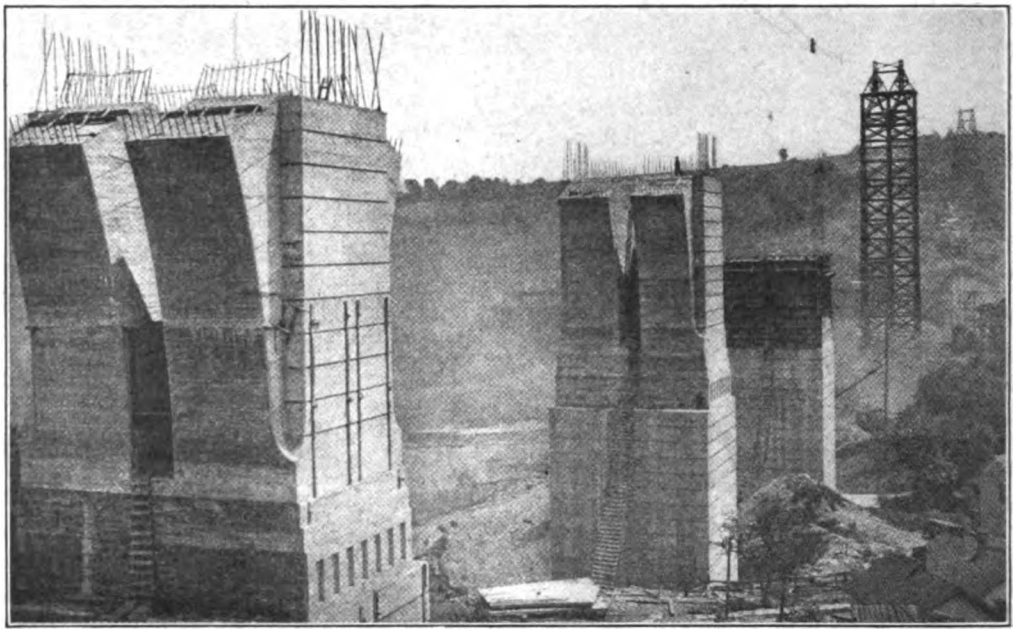
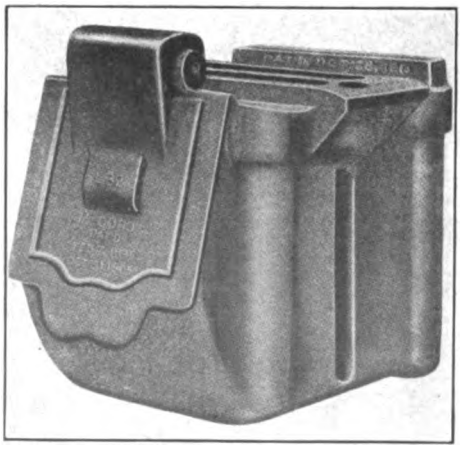


TWO OF THE VIADUCT PIERS WITH UMBRELLA SECTIONS COMPLETE.

of 2,230 feet. It will consist of twelve arches, ten of 180 feet span and two of 100 feet span. The abutment spans will be buried in the end embankments so that they will not be apparent after the work is completed. Besides the 167,000 cubic yards of concrete employed, there will also be used 2,275,000 pounds of reinforced steel. In building the foundation, the excavation of 43,500 cubic yards of material will be required. These excavations have been carried in open cofferdams through sand, gravel and boulder to a depth of sixty feet below ground water level. The accompanying illustrations give some idea of the progress of the magnitude of this work.

A New Combination Pressed Steel Journal Box. Utilizing Railway Scrap.

McCHORD AND COMPANY have recently brought out a new combination pressed steel and cast steel journal box. In its construction, the pressed steel collar and the cast steel top are made integral without the use of rivets or any other attachments that would be loosened by vibration and service. The accompanying illustration gives an excellent idea of the construction.



COMBINATION PRESSED STEEL AND CAST STEEL JOURNAL BOX.

Utilizing Railway Scrap.

SO successful have been the efforts of the Southern Pacific Company in reclaiming waste material and making it over into useful forms that a speical expert on this subject has been sent East to study the way the problem is handled on other lines. Edmund Burke, chief clerk under I. O. Rhoades, general purchasing agent, left to confer with officials of the railroads radiating from Chicago, St. Louis, Kansas City, St. Paul and New Orleans. He will be gone several months and will have nothing to do but learn the latest progress in his work throughout the United States.

The purchasing and stores departments of the Southern Pacific are already saving thousands of dollars a month by using up what was once discarded as old junk. A few months ago, an nouncement was made of the recovery of twelve thousand dollars each year through the use of old locomotive boiler tubes. Since then it has been found that even the soot deposited in the flues of oil-burning engines is valuable. It is pure carbon and has replaced coke in many blacksmithshops. Section men have been instructed to gather up all the old nuts and bolts that fall from trains along the right-of-way. These are sent to the shops at Sacramento, Los Angeles or Portland where they are re-threaded and machined and made as good as ever. Electric welding machines have been put in with which castings of steel that have become cracked can be welded together again and be even stronger than before. And the supply trains now pick up all old and discarded material before giving out the new, use being found for practically everything.

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Electric Locomotives in Freight Service.

THE plant of the Chase Rolling Mill Company, Waterbury, Conn., is located about 1½ miles from the nearest railroad track and at an elevation considerably above the railroad. Heretofore all the hauling, raw material and finished product, to and from the station has been handled by eight-horse teams. This proved to be expensive, costing at least 50 cents a ton.

To replace these teams an electric line 2.3 miles length, with a maximum grade of five per cent was built from the railroad to the mill. Two Baldwin-Westinghouse 45-ton electric locomotives were employed to handle the work formerly done with 20 eight-horse teams. Each locomotive is equipped with four Westinghouse No. 301-D-E, 100 horsepower, 600-volt motors and type HL control, and weighs 45 tons completely equipped.

The control equipment of these locomotives is mounted in the center of the locomotive and surrounded by an expanded metal screen cage. This centralization of equipment is one of the important features of Baldwin-Westinghouse locomotives.

One departure from the usual construction followed in locomotives is that the motors are "outside" instead of "inside" hung. This arrangement was necessary in order to give the trucks a short wheel base so as to enable them to easily negotiate the shap curves to be encountered.

The locomotives make from eight to ten trips per day and with a load of approximately from 100 to 125 tons each. This load is governed by the five per cent grade previously mentioned which is 3,000 feet in length.

These locomotives have been in operation since the first of the year and have had a perfect record, having given no trouble whatever.

The same engineer has the same locomotive every day and is responsible for its condition. These men are perfectly competent to make ordinary inspection and keep the apparatus cleaned and oiled. In addition to this, at stated periods of approximately one month the machines are thoroughly inspected by the men in the repair shop. Aside from this no other work has been done since the locomotives have been put in service, and not one cent has been spent on repairs.

Some of the characteristics of these locomotives are given below:

CAPACITY.

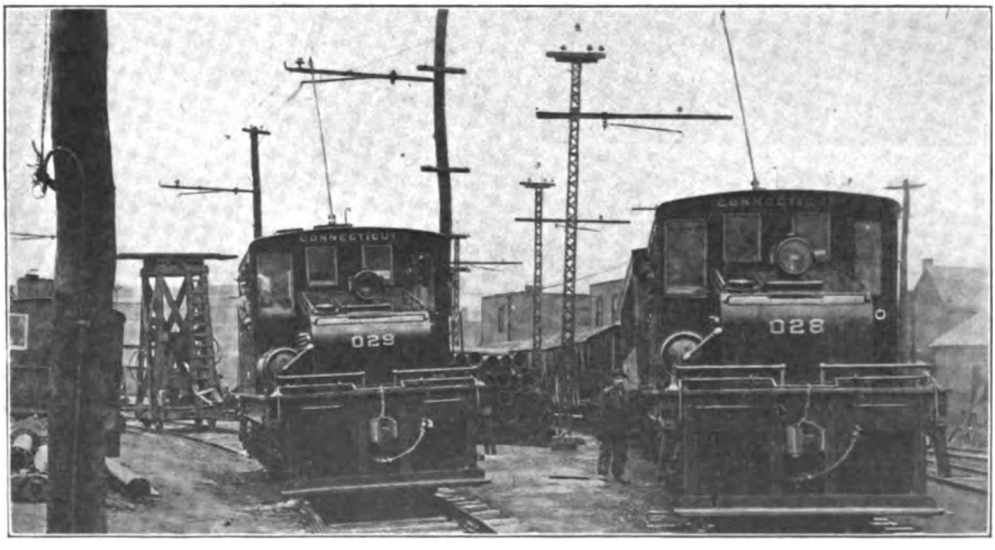
Continuous capacity—tractive effort with natural ventilation	4560 lbs.
Tractive effort at one hour rating, at 7.8 miles per hour at 600 volts	17270 lbs.
Maximum tractive effort	22500 lbs.

RATED HAULING CAPACITY.

Track profile.	Number of cars each weighing 45 tons with load.	Max. Speed M. P. H.
Straight level track	38	9.2
½ per cent grade	21	7.8
1 per cent grade	13	7.8
2 per cent grade	7	7.8

Main Line Electrification of the Chicago, Milwaukee and St. Paul.

THE *Electric World* states that the Chicago, Milwaukee and St. Paul Railway Company will probably before January first reach a decision as to the type of equipment to be employed for the extensive main-line electrification of its railroad over the mountains in Montana. It is practically certain that the overhead trolley system will be used to convey the electrical energy to the motors on the electric locomotives. Either the 14,000-volt, 25-cycle alternating current system will be used or the direct current 2400-volt system. Plans which have been submitted by the General Electric Company and the Westinghouse Electric and Manufacturing



BALDWIN-WESTINGHOUSE ELECTRIC LOCOMOTIVES USED IN YARD SERVICE.

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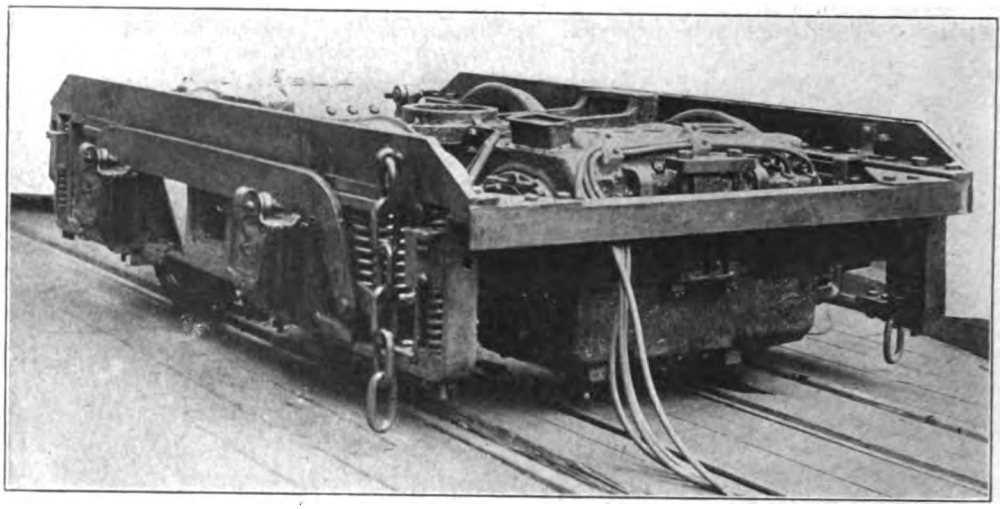
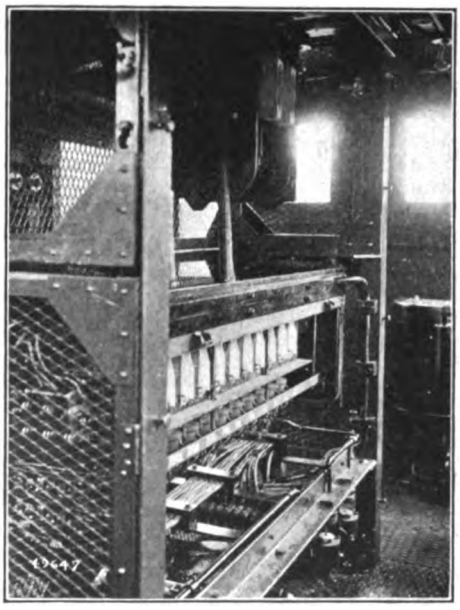


METHOD OF INSTALLING MOTORS WHICH ARE OUTSIDE HUNG IN SUCH A MANNER AS TO ALLOW A SHORT WHEEL BASE FOR TRAVERSING SHARP CURVES.



INTERIOR OF BALDWIN-WESTINGHOUSE ELECTRIC LOCOMOTIVE.

Company are now under consideration. For the railroad company the entire matter of electrification has been placed in the hands of Mr. C. A. Goodnow, vice-president in charge of operation and construction.

At first it is proposed to electrify a division of the railroad 113 miles long, extending over the Rocky Mountains between Three Forks and Deer Lodge, Mont. This work will be begun early in 1914. Ultimately the electrification will be extended to that portion of the main line between Harlowton, Mont., and Avery, Idaho, a main-line distance of 440 miles and, including sidings, a total of 450 miles of track. This work will mean an outlay on the part of the railroad company of perhaps $6,000,000 or $8,000,000, and the electrical construction work will proceed at such a rate that the annual expenditure will be about $1,500,000 or $2,000,000.

Experience with heavy railroad operation in and near New York City shows that electric locomotives can be run 2,000 miles without inspection under the conditions existing there. The locomotives which will be placed in service on the mountain divisions of the Chicago, Milwaukee and St. Paul can be relied upon to make from 250 to 300 miles at the outset. As there will be no delays for coaling, taking on water, cleaning fires or waiting for steam, it seems a fair conclusion that the tonnage will be handled with fewer locomotives, higher average speed and with a regularity which will result in better operating conditions. Passengers will be able to enjoy the mountain scenery without the annoyances incident to steam locomotion. Another point of interest is that while the steam locomotive is at its worst in freezing weather the electric locomotive is at its best at that time, since practically the only difficulty with the electric locomotive is to keep the motors from heating when doing maximum work.

One of the important benefits to result from electrical operation is the regenerative control of trains descending mountain grades by means of which energy will be returned to the line.

Energy will be purchased from the Montana Power Company.

A High-Tension Direct-Current Railway.

THE *Electric Railway Journal* of November 1st, contains an interesting account of a high-tension direct-current German railway of 17.6 miles in length, which operates in the Rhine Valley between Cologne and Bonn. This road is noted as being the first railway on which

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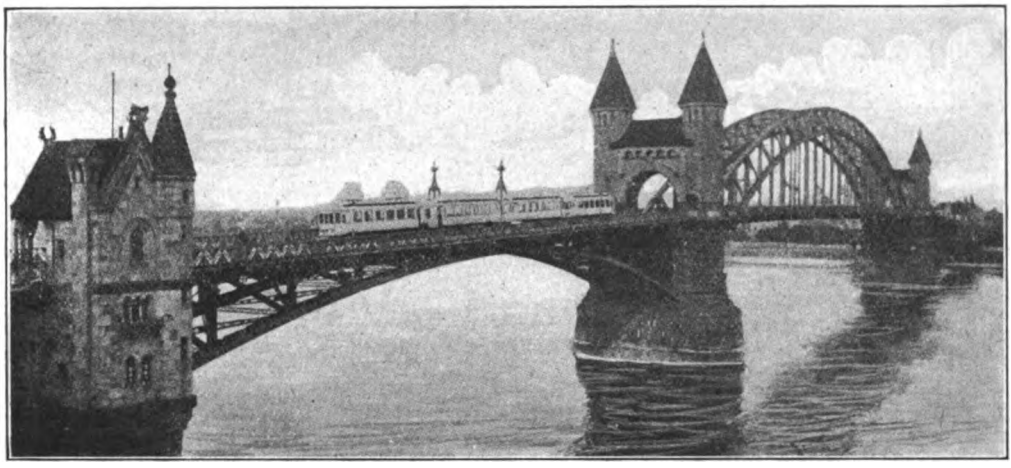


From the *Electric Railway Journal.*

SHOWING TRAIN OF RHINE INTERURBAN RAILWAY CROSSING BRIDGE ON A 3.3 PER CENT GRADE.

high-tension direct-current was used on the right of way and city sections respectively.

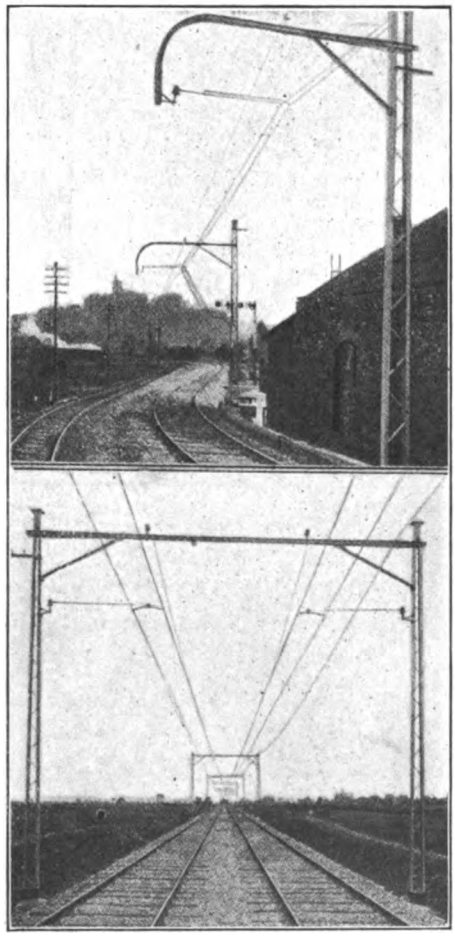
While the passenger service is electric throughout, steam locomotives are also operated, principally for the purpose of transporting local coal. The great success of the Cologne-Bonn line, which was completed in 1906, has led to the construction of a second line running from Bonn to terminals at Siegburg and Königswinter. While the two roads have no physical connection, their schedules are arranged to harmonize as closely as possible.

The rolling stock of the Cologne-Bonn Railway consist of 21 motor cars each seating 28 second class and 29 third class passengers, nine trailer cars seating a maximum of 72 passengers each, two passenger trailers with postal compartments, three market produce trailers with a seating capacity for passenger use, one parlor trailer, and a number of smaller trailers for various purposes. All cars are of the side-entrance type with special devices for the smokers and non-smokers of each class. The express trains make the 17.6-mile run in 44 minutes and the local trains in 58 minutes.

Gas Electric Locomotive for the Dan Patch Line.

PAST issues of the RAILWAY WORLD have discussed the remarkable success of the Minneapolis, St. Paul, Rochester and Dubuque Electric Traction Company in its operation of gas electric motor cars between Minneapolis and Northfield, Minn. Reference has also been made to the gas leectric locomotive which was being built for this company. While power of this character has been used rather extensively in the operation of motor cars, never before has a locomotive of this character been built. It has proved itself, however, to be worthy of a more extended use; and constant service, since last July, has demonstrated its success in every respect. A speed of 51 miles per hour running light, has been attained and 45 miles per hour with a five-car train, notwithstanding the locomotive is rated at only 38 miles per hour.

The accompanying photograph indicates its general appearance. Fuel consumed is about one gallon for 95 ton miles, and the control is so



From the *Electric Railway Journal.*

SHOWING METHOD OF WIRE SUSPENSION ON RHINE INTERURBAN RAILWAY.

arranged that either one or both of the engines may be used in the operation of the locomotive. The power plants are started by air in the same

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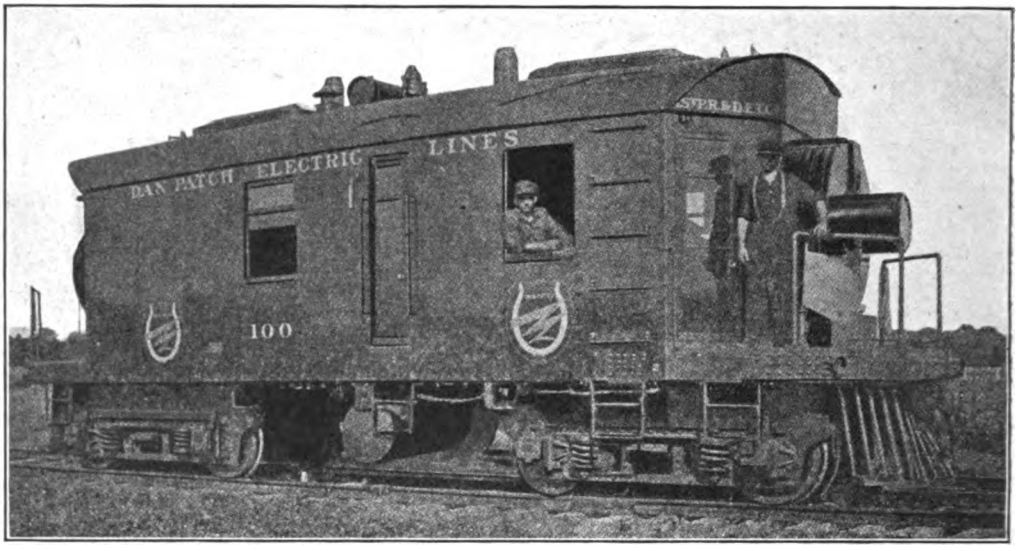


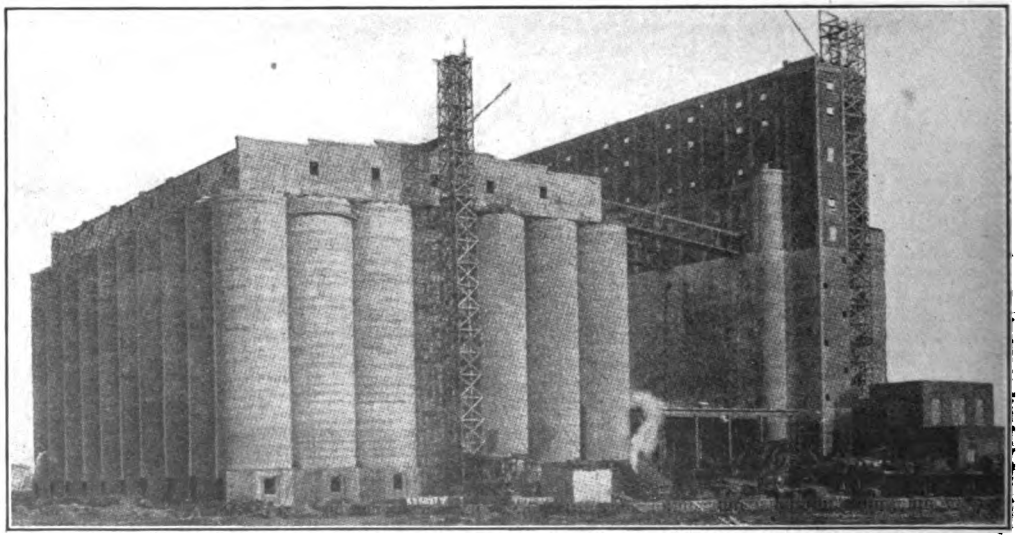
GAS-ELECTRIC LOCOMOTIVE RECENTLY INSTALLED BY THE MINNEAPOLIS, ST. PAUL, ROCHESTER AND DUBUQUE ELECTRIC TRACTION COMPANY.

way as on gas electric cars with the additional advantage that after one set is running, the second may be started electrically from the first. Four motors are used instead of two as in the gas electric car, being placed in pairs connected permanently in parallel. The controller provides seven points in the series position and six points in the parallel position. There are also two additional points for shunting the motor fields, thus making fifteen running points in all.

Terminal Improvements

New Grain Elevator at Port Arthur, Ontario.

THE Canadian Government has completed its new grain elevator at Port Arthur, Ontario. It represents the biggest individual elevator in the world. Seventy circular bins of 30,000 bushels capacity, together with 54 interspaces of about 8,000 bushels each, gives a storage house capacity of 2,500,000 bushels. The total capacity of the elevator is 3,250,000 bushels, the balance of the storage room being in the working house which contains seventy-five cir-



From the *Canadian Railway and Marine World.*

THE NEW TERMINAL GRAIN ELEVATOR AT PORT ARTHUR BUILT BY THE DOMINION GOVERNMENT.

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cular bins of about 7,000 bushels capacity each, fifty-six interspace bins of 3,000 bushels and thirty-six outer-space bins of 1,500 bushels each, making the total capacity of the working house approximately 750,000 bushels.

Boats can be normally loaded at the rate of about 75,000 bushels per hour but this can be increased in the first hour to 115,000 bushels. Ten hopper scales of 2,000 bushels each is part of the working house equipment which also includes five elevator legs for receiving, five for shipping, five for cleaning, one for screenings, one for drying, one for oats and two for flax. There are fifteen sets of receiving cleaners for oats, wheat and barley and provision made for the installation of fifteen more if necessary. Special machines have also been installed for the purpose of separating oats from wheat. There are also two screening separators and two flax separators.

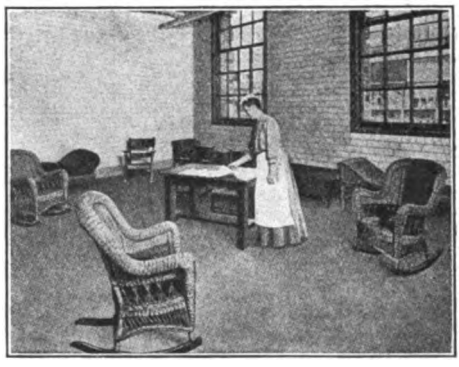
A drying plant having a capacity of 48,000 bushels per day has been installed in a separate building. This is employed in drying damp, tough or wet grain and putting it in condition for storage. The site contains about 32½ acres which is being enclosed on three sides with a revetment wall. It was formerly covered by water but now is filled in level with the top of this wall.

One Railroad's Method of Caring for the Immigrant Family.

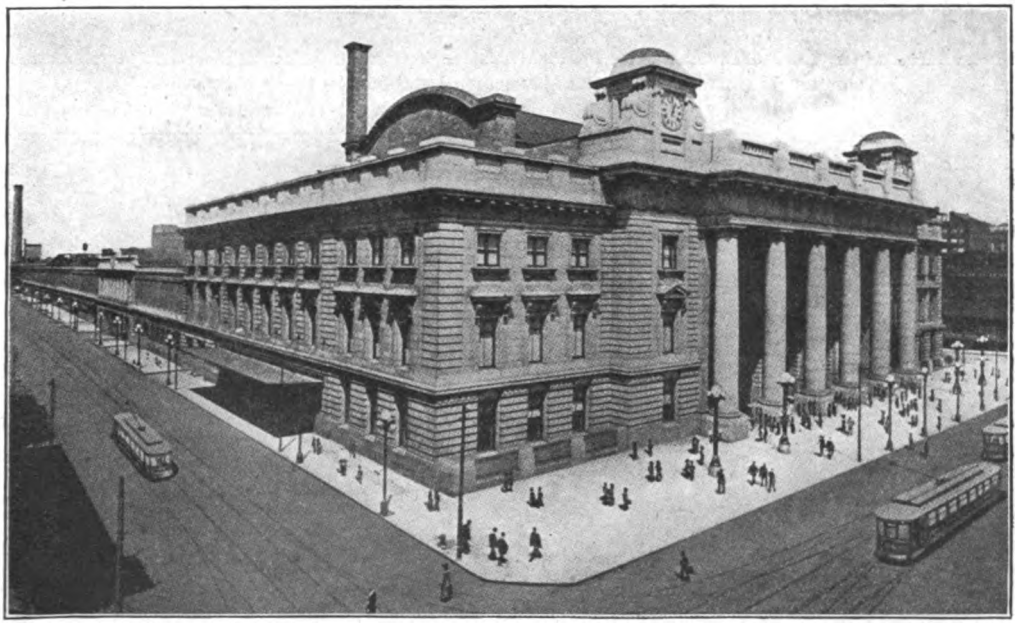
THE Chicago and North Western Railway is justly proud of its new and spacious passenger terminal at Chicago with its many improvements, all catering to the welfare and comfort of the traveler. In the provision made for the care of the immigrant and his family, this road has established an innovation which hardly fits the common definition of the "soulless corporation," a term so often used by the public in describing the country's railways.

A special room in the new Chicago station has been set apart for the care of this class of patrons and every effort is made to provide for their comfort. Arriving at the new terminal instead of being crowded into a small space and subjected to conditions calculated to give them an unfavorable impression of the great Middle Western metropolis, they find themselves guided to a large and comfortably appointed room with easy chairs, couches and other conveniences that tend to make their few hours' wait pleasant.

They are assigned to a section of the room where they can place their baggage and where the women and children can find much needed rest. A matron is in attendance who, speaking the mother tongue of the travelers, sees that the proper necessities are supplied. There is plenty of room and the place is well lighted and spotlessly clean. The matron helps to make the children comfortable and the immigrant mothers find time to remove their wraps and rest upon the lounges or in the chairs provided.



IMMIGRANT REST AND LOUNGING ROOM FOR WOMEN AND CHILDREN.



NEW PASSENGER TERMINAL OF THE CHICAGO NORTHWESTERN RAILWAY AT CHICAGO.

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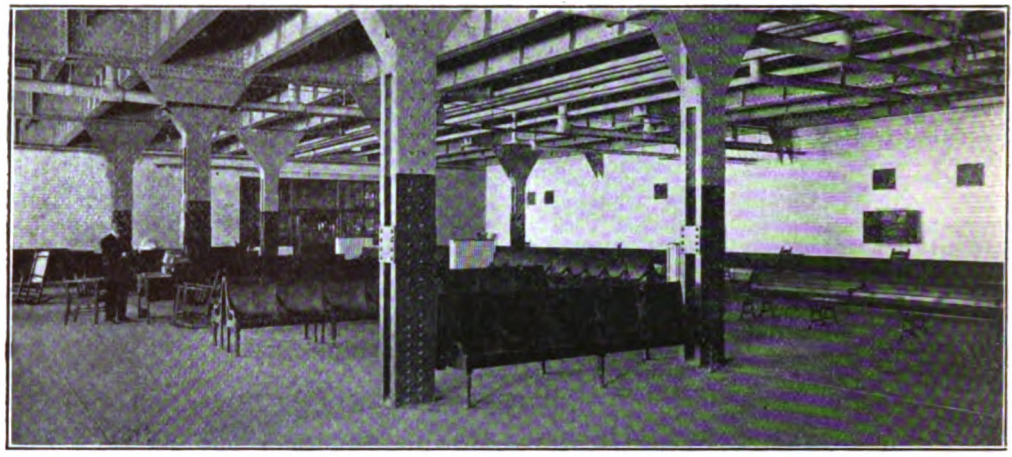
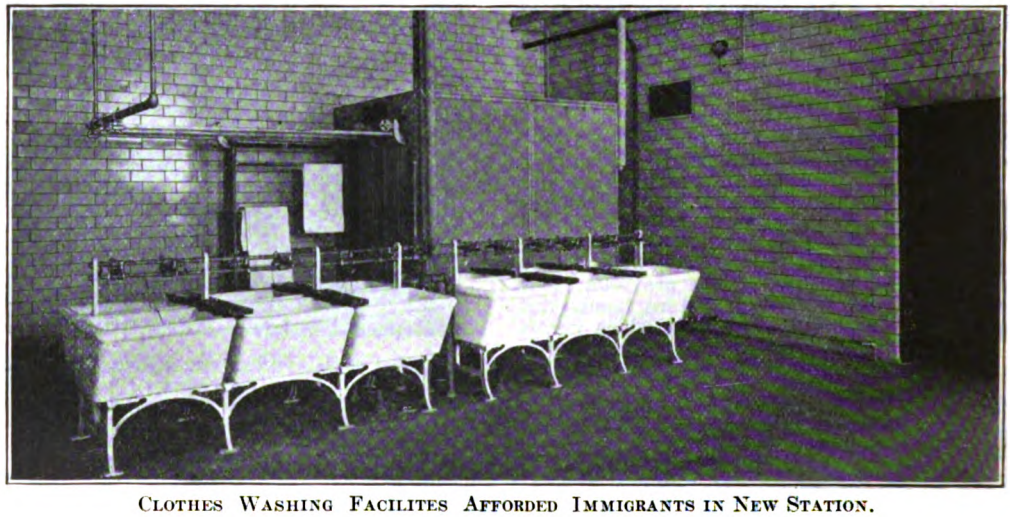
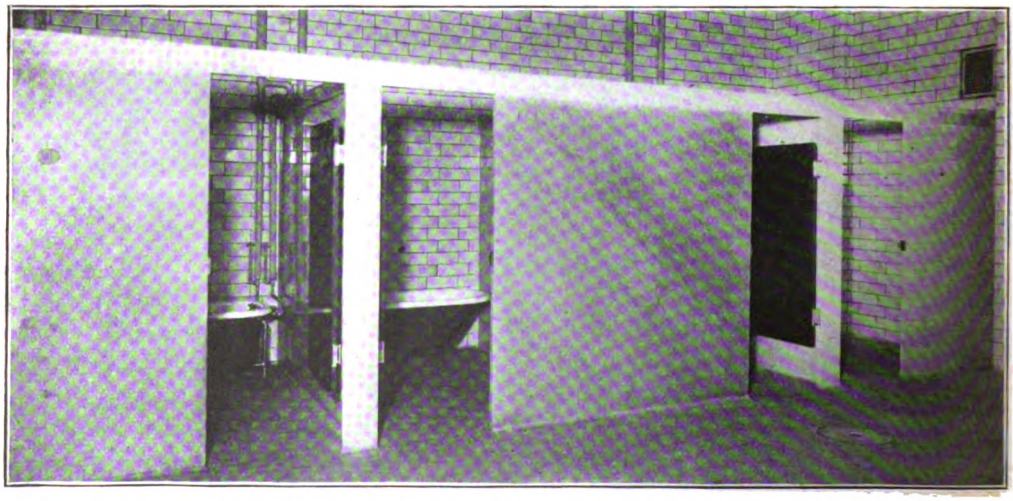


IMMIGRANT PASSENGER ROOM IN THE NEW CHICAGO NORTHWESTERN STATION.



CLOTHES WASHING FACILITES AFFORDED IMMIGRANTS IN NEW STATION.



BATHING FACILITIES AFFORDED IMMIGRANTS IN THE CHICAGO NORTHWESTERN'S NEW PASSENGER STATION.

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In the men's quarters are found a smoking room with easy chairs, wash stands with hot and cold water, and bath tubs, etc. These comforts are free and the men are invited to partake of the bath rooms and in this way refresh themselves. Soap and paper towels are also furnished free. Thus a new lesson in sanitation is provided and one that is not likely to be forgotten.

To show how thoroughly the road has considered the comforts of this class of travelers, it is interesting to note that in the women's section are stationary wash tubs and steam clothes driers in order that the soiled clothing of the children as well as the adults may be cleansed before proceeding on their travels. The women and the children are also provided with proper bathing facilities and special arrangements have been made for meals or light lunches at prices within reach of their scanty resources. It is hardly necessary to state how the food is enjoyed and that perhaps many of the grim impressions which had begun to enter the minds of the weary travelers with regard to the new country and its people, melt away under the stimulating effect of the kindness and consideration shown them.

Other roads besides the Chicago and North Western are making similar efforts to see that the newcomer to our shores receives every consideration possible; which, by the way, is only one of the many thousand efforts constantly being made by the carriers to serve and care for the traveling public.

Report on Chicago Railway Terminals.

MR. BION J. ARNOLD has prepared a report for the Citizens' Terminal Plan Committee of Chicago, on the railway terminal situation of that city. Among other things it calls for co-operation among the various railroads and the City of Chicago, entrances to the city in covered subways and the development and more efficient use of property already held for freight terminals.

Mr. Arnold has based his report upon a study of all the previous reports and upon data furnished him by twenty-eight of the railroads entering the city. He conditionally concurs in the report of Mr. John F. Wallace on the ordinance carrying the union passenger permit but not with those relating to the freight situation. In Mr. Arnold's opinion, the City of Chicago should grant no further ordinances to steam railroads or other railway companies seeking to rebuild their present terminal facilities or to construct new terminals, unless the ordinances contain definite provisions making the following fundamentals mandatory upon the road or roads benefited by them:

An agreement to co-operate with the other railroads affected, and with the city, in straightening the South Branch of the Chicago River.

The placing in covered subways beneath the street level, within a definite time, of all tracks of the steam railroads within the district bounded by Twelfth, Halstead, Lake Street and the lakefront (except the elevated tracks of the new Chicago & North Western Station and such tracks as are now or may hereafter be located within the present depressed area between Canal Street and the Chicago River; also the tracks of the Illinois Central Railroad along the lake front).

An agreement to co-operate with other railroads and the city in working out a plan which will ultimately open practically all of the north-and-south streets between State and Canal Streets, and practically all of the through east-and-west streets between Randolph and Harrison Streets, and also Polk, Taylor, Twelfth, Fourteenth and Sixteenth Streets, which are now blocked by railroad property.

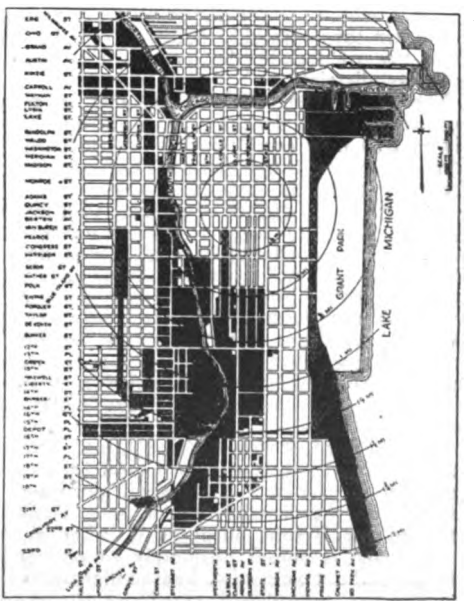
The concentration of long-distance passenger traffic into the fewest number of terminals practicable, and at such locations as will offer the least obstruction to the extension of the business district consistent with reasonable accessibility therefrom.

An agreement to co-operate with the other steam railways and the city in the development to its fullest extent, along the most efficient modern lines, of the property now owned by various railroad companies within, or contiguous to, the business district of the city, with the ultimate object of the complete development of such property, so that the property now occupied by the companies in the business district between State Street and the river can be cacated and devoted exclusively to business purposes or the surface released by placing the tracks under ground and developing the property above the surface for business purposes.

Where streets or alleys are closed, temporarily or for long periods, an equivalent area or value to be given in return by the railroad in widening other streets.

The city to reserve control over all sub-sidewalk and sub-pavement space, not specifically vacated in the ordinance, that may be required for suburban transportation systems or other public utilities.

An agreement to co-operate with the city in the establishmen: of elevated thoroughfares



From *Age-Gazette*.

RAILWAY PROPERTY IN THE CHICAGO DISTRICT INDICATED BY BLACK SECTIONS.

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across the railway property lying between Canal Street and the South Branch of the river, and westward as later may be deemed necessary. This system to be co-ordinated with the bridge levels established by the city and with the necessary changes in north-and-south thoroughfares to equalize the grades so as to facilitate vehicle traffic. The ordinance to provide means for ascertaining and finally to stipulate the division of cost of such changes proportional to the relative benefits derived by the city and the companies respectively.

Provision for a marginal way or river road contiguous to the river, extending along the railroad property west of the river between Lake and Sixteenth Streets, and the development of suitable docking facilities, municipal or otherwise, along the entire way, and underneath the bridge approaches where practicable.

Provision in all passenger stations hereafter constructed for through-connected or interchange tracks, so as to permit interchange of suburban service between roads operating in different parts of the city.

An agreement to co-operate with other roads to interchange the use of coach-yard facilities if necessary to carry out the through-routing or interchange principle for suburban service.

Commitment to the effect that the company will co-operate with the other roads in the working out of a general plan whereby the roads may be systematically grouped and brought into two or more terminal stations with the least amount of track occupancy.

An agreement to co-operate with other railroads and the city in establishing universal facilities at Clearing, or some other point, by means of which package freight (less than carload lots) now interchanged in the down-town district will be interchanged at such clearing point, thus preventing haulage of freight into the business center and back again as is done at present—the effect of which change would be to release present down-town freight facilities for the legitimate use of freight destined to and from the business district.

The removal of obstructions due to railroad occupancy which decrease the width of the river channel as now established, so as to permit the construction of bridges without encroaching upon the river channel.

The granting of an ordinance to the Pennsylvania Company for a passenger terminal, Mr. Arnold finds, need not be conditioned upon the granting of an ordinance to the same company for the use of the proposed freight terminal, for it is not evident that the company would need this additional territory for freight purposes for many years to come, if the roads owning the property between Canal Street and the river would co-operate in developing it to its fullest extent.

By means of double-decking Canal Street the property on the west side of Canal Street would be made available for terminal purposes, and there is no reason why this property should not be used for freight purposes if, after analysis, more space is found ultimately to be needed—provided the tracks are kept underground and the property developed overhead for business or manufacturing purposes.

How far these recommendations are enforceable through the Interstate Commerce Commission or the State Public Utilities Commission should be a subject for further study, but Chicago should now avail herself of the opportunity to regain control of her traffic districts.

Inasmuch as the Chicago Plan Commission has been established, has done such extensive and commendable work for the betterment of Chicago, and has been recognized by having certain of its recommendations carried out, such as the widening of Michigan Avenue and Twelfth Street, and the development of the present Lake Front Park, the city authorities should still further see that no structure is reared by any railroad company which will prevent the ultimate realization of such parts of the original plan laid down by Mr. Burnham as have met with the official approval of the Chicago Plan Commission.

With reference to the magnitude of this problem and the enormous costs and difficulties involved, not only to the railroad companies but also to the city, in the rearrangement of the properties in accordance with the suggestions made, Mr. Arnold states that he does not wish to be understood as counselling any one-sided policy of compulsion on the part of the city for the carrying out of any of the suggestions.

The general method of street improvement and the extension of the business district recommended by Mr. Wallace is concurred in by Mr. Arnold, but the retention of the Pennsylvania freight site is not concurred in, nor the unconditional retention of the passenger terminal site at Adams Street; and, in fact, another site is recommended as preferable. Neither is the premise accepted that present divisional occupancy and operation of railroad properties must govern their ultimate disposition in meeting the necessities of terminal reorganization recommended.

Completion of the Canadian Pacific Railway's St. Lawrence River Bridge.

THE Canadian Pacific Railway has completed its task of reconstructing the St. Lawrence River Bridge between Highland Station and Caughnawaga. Mr. David McNicoll, vice-president of the Canadian Pacific is shown in the accompanying illustration, tightening up the last bolt in the track, thus placing the seal of official approval upon the successful completion of the work.

Canadian Railway and Marine World.

PUTTING THE FINISHING TOUCHES TO THE CANADIAN PACIFIC'S NEW BRIDGE OVER THE ST. LAWRENCE.

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Those present at the ceremony included in addition to Mr. McNicoll, Mr. Phelps Johnson, general manager of the Dominion Bridge Co.; G. H. Duggan, chief engineer of the Dominion Bridge Co.; A. D. MacTier, general manager, the C. P. R. Eastern lines; P. B. Motley, engineer of bridges, the C. P. R.; H. H. Vaughan, assistant to the vice-president of the C. P. R.; J. M. R. Fairbairn, chief engineer of the C. P. R.; J. K. McNeillie, superintendent of Montreal terminals; F. W. Cowie, chief engineer, the Montreal Harbor Commissioners; M. S. B. Brown, engineer of the C. N. R. tunnel; C. N. Monsarrat, chairman of the Quebec Bridge Commission; and Mr. George Hodge, superintendent of the Eastern lines of the C. P. R.

Interstate Commerce Commission

Death of Commissioner Marble.

THE Commission sustained a sad lose in the untimely death of Commissioner John H. Marble which occurred suddenly on November 21st, and is referred to at greater length in another section of this issue. Mr. Marble while only a young man, had already demonstrated marked ability and was undoubtedly entering a period of great usefulness. His death together with the resignation of Commissioner Prouty and the probable retirement of Mr. Clements, leaves three vacancies soon to be filled by President Wilson. Speculation is rife as to who the successful candidates may be, and rumor has it that politics will play a prominent part in their selection. We believe, however, that the President will exercise the greatest care in filling these positions as he realizes what an important part railway regulation is now playing in the constructive activities of the country and that nothing could do more harm than to place such tremendous responsibilities upon the shoulders of radical and inexperienced men. It has been very clearly shown within recent months that the point has been reached where railway regulation must develop a high order of intelligence, fairness and constructiveness if National growth and prosperity is to be properly conserved.

Numerous candidates have been mentioned for these positions, including Martin S. Decker and Milo L. Maltbie, of the New York Public Service Commission; D. O. Ives, chairman of the Transportation Committee of the Boston Chamber of Commerce; Patrick J. Farrell, solicitor of the Commission; ex-Governor Glenn, of North Carolina, and a number of others. No official announcement has been made as yet regarding those to be selected, but the name of David O. Ives has been so prominently and persistently mentioned in connection therewith, that it is thought probable that he will be offered one of the commissionerships. Mr. Ives' experience fits him admirably for a position of this character, he having been formerly a railway manager in Iowa and was for some time a commissioner of the Trunk Line Association. He is said to have the support of the majority of Congressmen from Massachusetts.

The Advance Rate Hearings.

MUCH of the Commission's time at present is being consumed in considering the advance rate cases in which the Eastern carriers are asking permission to make a horizontal increase of five per cent in the freight rates in Official Classification territory. The Commission recognizes the importance of the case and the desirability of having it settled as quickly as possible, and every effort is being made to accomplish this end. The testimony being offered, however, is voluminous and will undoubtedly take many months, after it has all been presented, to study and digest. The opening statements made by President Willard, of the Baltimore and Ohio, and by F. A. Delano, receiver for the Wabash, are printed in full in another section of this issue, as well as a more extended reference to the daily hearings which have so far been held. Unusual interest in the case is manifested in official circles and the consensus of opinion appears to be that some increase will be granted.

Civil Service Examination for Railway Valuation Land Appraisers.

THE United States Civil Service Commission has announced open competitive examinations for senior and junior land appraisers (male) for positions in the Interstate Commerce Commission, under the act providing for the valuation of the property of common carriers. Two grades of senior land appraisers will be established, the salaries in the first grade ranging from $2700 to $3600 per annum, with necessary expenses when absent from headquarters in the discharge of official duties, and in the second grade from $1800 to $2400 per annum and such expenses. The junior positions will command salaries of from $900 to $1500 per annum, with expenses. Appointment to these positions will be principally for duty in the field, but some appointments will be made for duty in Washington, D. C. Applicants for the senior positions will not be required to appear at any place for examination, but will be rated upon the evidence adduced as to their general and technical education and training and their practical experience and fitness.

It is desired to secure eligibles having qualifications for service in land appraisal and inventory work. Applicants should state fully and in detail in the application form, under the following headings, their education, training, experience, and fitness: (a) Education and training. (b) Preliminary experience in offices of real estate agencies, abstract companies, title-insurance companies, tax assessors, or railway land or legal departments. (c) Service in connection with the surveying of lands, examination of titles, purchase and sale of real estate, land litigation, or in land or legal departments of railways. (d) Experience in appraisal and inventory work. (e) General business, legal, or engineering experience other than above enumerated. Applicants for positions under grade 1, senior, must show that they have had at least eight years of satisfactory, responsible experience in connection with the purchase, sale, assessment, or appraisal of land; applicants for

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grade 2, senior, must have had five years of such experience; experience in the examination of titles or incidental experience in the sale of land in connection with general legal practice will not be accepted.

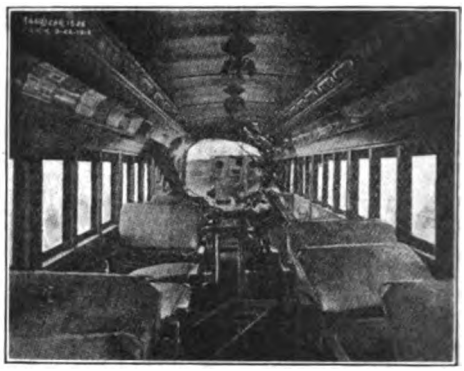
For the senior positions under grade 1 applicants must have reached their 30th but not their 60th birthday, and for grade 2 they must have reached their 25th but not their 45th birthday on the date of the examination. Applicants for the junior positions must show that they have had satisfactory experience in connection with the purchase, sale, assessment, or appraisal of land for at least three years, and must have reached their 21st but not their 45th birthday on the date of the examination.

Persons who meet the requirements and desire these examinations should at once apply for form 1312 to the United States Civil Service Commission, Washington, D. C.; the secretary of the board of examiners, post office, Boston, Mass.; Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Cal.; customhouse, New York, N. Y., New Orleans, La., Honolulu, Hawaii; old customhouse, St. Louis, Mo.; or to the chairman of the Porto Rican Civil Service Commission, San Juan, Porto Rico. No application will be accepted unless properly executed and filed with the Civil Service Commission at Washington, in complete form, prior to the hour of closing business on December 22, 1913.

Report on Long Island Wreck.

THE Commission's chief inspector of safety appliances has issued his report covering his investigation of the head-on collision which occurred on the Long Island Railroad near College Point, L. I., on September 22nd, resulting in the death of three employes and one passenger and the injury of forty-four passengers, six employes on duty and four employes off duty. Briefly stated, the accident was caused through the negligence of a towerman who permitted a train to go through without having received the necessary information regarding a train coming from the opposite direction. It was

FIRST CAR OF WESTBOUND TRAIN NO. 311. END VIEW.



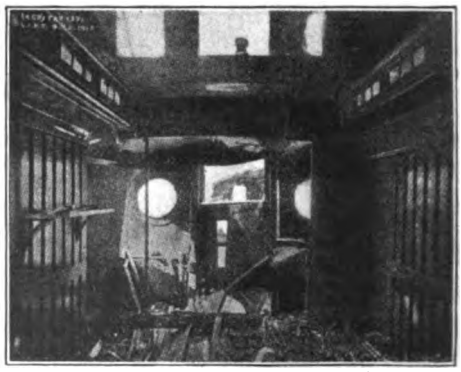
INTERIOR VIEW OF FIRST CAR OF WESTBOUND TRAIN.

apparently another one of those cases of chance-taking and disregard of company rules. The branch on which the accident occurred is a single track line only 4.6 miles in length. Trains are operated by electricity and no block system was in use, operation being controlled by

FIRST CAR OF EASTBOUND TRAIN NO. 308. EXTERIOR VIEW.

time-table rights and by train orders transmitted by telephone.

The colliding trains were westbound train No. 311, consisting of one motor passenger car and one motor combination baggage and passenger car, each of steel construction and eastbound



FIRST CAR OF EASTBOUND TRAIN. INTERIOR VIEW.

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train No. 308, consisting of one motor combination baggage and passenger car and four motor passenger cars, all of steel construction.

The Commission has investigated a number of accidents in which a portion of the equipment involved was of steel construction, but this is the first head-on collision where all the cars of both trains were constructed of steel. It is, therefore, of particular interest to note the conditions of the cars involved in the accident as shown by the accompanying illustrations.

The forward end of the leading car in train 311, was crushed, the side sills being buckled inward and the center sills buckled upward. The interior of the car was also considerably damaged by the shock: of the collision.

The forward trucks of the leading car in train 308, were forced upward under the body of the car for nearly half its length and were followed by the forward trucks of the leading car in train 311. The forward end of the leading car in train 308, was also damaged but not to the extent of the leading car in train 311. The sills remained true but the floor was forced upward in the center of the car by the dynamo and auxiliary reservoir being caught betwen the floor and the forward trucks when the latter were driven backward.

It is interesting to note that on September 18th, four days previous to the accident, authority had been given by the general manager of the Long Island Railroad to install a manual block system on the branch on which the accident occurred. At noon on September 22nd, two days after the accident, such a block system had been placed in operation.

Order Covering Water Line Permits.

THE Commission has sent a notice to all rail and water carriers to the effect that railroads wishing to continue their ownership of steamship lines operating through the Panama Canal after July 1st, of next year, will have to apply for such permission from the Commission not later than March 1st next.

Under the law the Commission is given the power to decide when the railroad ownership of a ship line is not injurious to the public good and does not tend to restrict competition. In cases where competition is not hindered the Commission has the authority to permit the continuance of the railroad ownership of a steamship line.

To Re-argue Tap Line Case.

ALTHOUGH the Commission has perfected an appeal to the Supreme Court of the United States from the recent decision of the Commerce Court in the case known as the Tap Line Case, nevertheless on its own motion the Commission has concluded to order a re-argument in that case. This action was taken not only in view of the opinion of the Commerce Court handed down recently, but also because the Commission has felt that a re-argument of the case both on the facts and the law and upon such additional facts as might be developed would be beneficial.

In order to avoid any delay in the progress of the appeal in the Supreme Court, the re-argument has been set for January. At its conclusion the Commission will be sufficiently advised as to enable it to prosecute the appeal or to determine how far, if at all, its order in the tap line case should be modified.

Freight Car Statistics.

THE Commission has completed an investigation into ownership of freight cars in the United States, and for the first time since the Commission was created it has definite figures as to the number and character of freight equipment of American railways.

According to the Commission's figures there are in the United States 2,300,000 freight cars owned by the railroads and 140,000 cars owned by car companies or other private ownerships. Private parties own more refrigerator cars than the railroads, the private car lines owning 54,000 and the railroads 49,000.

The investigation developed that there are 43,000 freight cars in the United States used for no other purpose than for the transportation of automobiles.

Car Supply Ruling.

THE Commission has issued a decision to the effect that each interstate railroad "is charged with the duty of furnishing cars for the transportation conducted over its line," quite irrespective of any contract one railroad may have entered into with another providing for a joint supply of cars.

The decision concerned the rules governing the distribution of coal cars in times of car shortage by the Colorado & Southern, the Denver & Rio Grande, and the Colorado & Southeastern. The Commission held that the contract, as to car distribution, between the first and last of these lines, caused undue discrimination among shippers, and, therefore, was unlawful.

Export Grain Rates Attacked.

THE New York Produce Exchange has filed a petition with the Commission attacked east-bound rates and regulations of the Eastern railroads on grain, flaxseed, and like commodities, from Western and Northwestern States. It is charged that traffic in grain is, through present rates and regulations, being diverted to Montreal from Eastern ports of the United States, particularly New York, and that the rates are excessive and discriminatory.

Demand is made that a sliding scale of grain rates, according to seasons, be made effective, and that the discriminations and preferences complained of be removed.

State Commissioner to Co-operate in Valuation Plans.

THE Valuation Committee of the National Association of State Railway Commissioners, met in Chicago, on December 10th, to take action to insure co-operation by the State organizations with the Interstate Commerce Commission in the pending valuation of the railroads of the country. It was asserted that future State valuations would be governed before the courts by the valuation to be made by the Interstate Commerce Commission, and that it was essential that the State Commissions should work side by side with the National

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Commission in order to assure justice to themselves and avoid future conflicts.

Steps to obtain recognition by the National Commission will be taken.

Canadian Railways File Tariffs of Increased Rates.

THE Canadian Pacific, Canadian Northern and Grand Trunk Railways have filed with the Board of Railway Commissioners of Canada and with the Interstate Commerce Commission freight tariffs effective November 15th advancing all rates approximately five per cent, both class and commodity, on their lines east of Port Arthur between points in Canada and the United States, the advances to apply in the United States east of Chicago and north of the Ohio River. The same advances are proposed on import and export traffic to and from all Eastern Atlantic ports, both Canadian and United States. These advances are made in sympathy with similar advances that were proposed to be effective on the same date in the Eastern United States. They apply on all raw material, such as coal, iron, lumber, etc., brought into Canada by manufacturers and to paper, wood pulp and such commodities as are exported to the United States and more under commodity tariffs.

Investigation of Louisville and Nashville.

IN compliance with the Lea resolution adopted by the United States Senate on November 6th, the Commission has begun an inquiry into the financial operations and relations of the Louisville & Nashville Railroad Company, the Nashville, Chattanooga & St. Louis Railway, and affiliated lines.

The investigation, ordered recently by the Senate, is expected to disclose whether there be any interlocking ownership of the stock, bonds, or other securities of the roads; whether competition between the lines in the same territory is being maintained; whether competition is prevented by agreements entered into among the roads; whether the roads involved in the inquiry have subscribed or expended money to prevent other roads from entering their territory, or to maintain political or legislative agents, or to influence public sentiment in favor of the plans of the several lines, and whether the law is being violated with respect to the issuance of passes.

No time has been fixed for hearings, but the Commission will begin at once the collection of data bearing upon the inquiry, and later will announce the times and places of the formal proceedings.

Higher Rates for Cereals Carrying Premiums.

BY dismissing the complaint of the Minneapolis Cereal Company against the Chicago Northwestern, the Commission has placed its stamp of approval to the practice of the railroads of charging a higher rate on commodities in which premiums are packed. In this instance silver plated spoons were inclosed. Western classification provides that the rate on a commodity when containing a premium shall be 110 per cent of the rate on the commodity alone. A somewhat similar provision is applied by the roads operating in official classification territory.

The decision of the Commission said: "To be able to ship premiums in packages is a privilege of value to the shipper. This complainant states that it would not handle premiums if it were necessary to ship them in separate packages. It was demonstrated of record that as to certain carloads of 'cream of rye' which had moved in Western classification territory the rules complained of operated to make the total charges less than those which would have accrued if the carload rates had been applied to the weight of the cereal and the appropriate less-than-carload rates to the actual weight of the spoons contained in the packages. Probably as a result of this showing counsel for complainant announced at the argument that there was no objection to the maintenance of the present rules with respect to carload traffic."

Ruling on Storage Rates.

THE Commission has rendered a decision relative to proposed uniform storage rules and rates of roads in Central Freight Association territory, which have been under suspension for some time. The Commission passes upon them only so far as they apply to explosives which are classified as "dangerous" and "most dangerous." It holds that the rules should be revised and modified because they are unreasonable—providing for doubling the charges after the expiration of the free time allowed on "most dangerous" explosives and reducing the free time from 48 to 24 hours on the "dangerous" articles in addition to doubling the charges after that time has been passed.

The Commission adds:

"In view of the amount and penal nature of the charges, carriers should co-operate with shippers in avoiding hardships that might result from the operation of the rules, to the extent of notifying shippers, upon request properly made at the time of tendering shipment, of the failure or refusal of consignees to accept or remove shipments.

"We are of the opinion that the proposed rules, even as modified, would be unreasonable unless provision for such notification should be contained in the tariffs. Notice should be mailed unless the shipper request that it be sent by telegraph at his expense."

Steel Passenger Car Problem.

RAILROAD officials have begun a campaign to obtain action by Congress delegating full power to the Commission in dealing with the steel passenger car problem.

Chairman R. B. Stevens, of the sub-committee on interstate and foreign commerce of the House has announced that a series of hearings on the subject will begin within the next few weeks. Several bills pending in Congress provide for the substitution of steel passenger cars for wooden equipment and plans have been made by Representative Stevens to obtain the views of a large number of railroad officers and car builders on the question.

One of the important reasons why this matter should be in the hands of the Commission

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is that it is out of the question to draw a bill fixing the time in which steel cars must be completed, owing to the lack of knowledge as to what the car building capacity of the country is going to be. With the matter in the hands of the Commission, however, they could demand the substitution of steel cars for wooden ones as fast as it is practicable and keep in touch with the entire situation. This was the method pursued in equipping the railroads with automatic couplers and other safety devices and has proven entirely satisfactory both to the Government and to the public.

Railway Accidents.

THE Commission has issued its accident bulletin for the quarter ending June 30, 1913. This shows that as compared with returns of the corresponding quarter of 1912, there was a total increase of 140 in the number of persons killed and of 8,823 in the number injured in railroad accidents of all kinds in the United States. There was an increase of 124 in the number of train accidents. Defective roadway and defective equipment together caused more than 39 per cent of all derailments reported, 15.1 per cent being caused by broken rails.

The total number of casualties in all classes of accidents, incident to railroading during the quarter, was 2535 killed and 49,011 injured. Of these totals 2,286 were killed and 16,868 injured in other than train accidents, including accidents to employes while at work, to passengers getting on or off cars and to trespassers.

The total number of collisions and derailments reported for the quarter was 3,596, of which 148 collisions and 202 derailments affected passenger trains. The financial damage caused by the accidents was $3,324,289, a material increase over the returns for the corresponding quarter of 1912.

California Steamship Line Demands Joint Rates.

THE Pacific Navigation Company operating in Pacific waters from San Francisco, has begun a proceeding before the Commission against the Southern Pacific Company and other transcontinental railroads, demanding that the railways make through routes and rates with the complainant on passenger traffic.

Discrimination against the Pacific Navigation Company was alleged in denying its membership in the Transcontinental Passenger Association, which automatically would entitle it to the through routes and joint rates.

ORGANIZATION NOTES.

Annual Meeting of National Civic Federation.

THE National Civic Federation held its annual meeting in New York, on November 12th. The address of its President, the Honorable Seth Low, is of peculiar interest to railway officials in that it dealt largely with some of the problems now confronting railway management. President Low advocated that the carriers be granted permission to raise their freight rates but he also suggested that it might be wise to make some readjustment on a downward scale in passenger rates. He held that in a general way, United States railroads charged more for passenger traffic and less for freight traffic than the government-owned roads of Europe. Furthermore, he contended that a lowering of passenger tariffs would be a popular move and therefore prove beneficial in a number of ways.

Mr. Low pointed out that through recent arbitrations the operating expenses of railroads in Eastern territory have been increased by many millions, and that if roads are thus compelled by legislation and arbitration to increase their expenses, as a matter of justice they should be permitted to increase their earnings, otherwise they will be left in a sorry plight. He said that the flow of capital into American railroad securities is likely to be checked until this anomaly is ended.

Continuing Mr. Low said in part:

'The actual situation of the railroads at the moment seems to me so serious that if this application for an increase of freight rates is declined, I fear the impulse that will be given to the demand for the public ownership and operation of the steam railroads of the country will be inevitably strengthened. In a spirit of despair, men who know better will be apt to say: 'That is the only way,' and out of despair, I need not remind you, wise counsels seldom come. I make no apology, therefore, for pointing out briefly on this occasion some of the difficulties attaching to Government ownership and operation of railroads in a country like ours, with a Federal Government, evolved as ours has been, covering half the continent.

"Such information as I can command leads me to believe that in Germany, France, Australia, Italy and Austria the earnings of the State-owned railroads in each country barely equal, if they do equal, the sums paid in taxation by the railroads of the United States. The freight rates prevailing in those countries are uniformly higher, I believe, than the freight rates prevailing in the United States; but it is noticeable that the average passenger rate, disregarding the division by classes obtaining there, is lower in some, and I think in all, of those countries than here. This is largely due, no doubt, to the fact that the multitudes there travel third class, and are given accommodations that would not be acceptable here.

"I wonder if our railroad managers have ever noticed that where Government ownership obtains passenger fares for the multitude are less than the passenger fares in the United States, although in the United States the freight rates are only one-half the rates paid in some countries, while our railroads pay double the wages. First class passenger rates abroad are apt to be higher than the prevailing rate here. This only emphasizes how much more cheaply the multitude travel who travel third class, when the average passenger fare in Germany, for instance, is only half what it is in the United States.

"Our railroad managers, if they would think for a moment as Government officials think when they are charged with the duty of operating railroads, would realize that passengers vote, but freight does not. Any policy, therefore, which reduces the passenger rates is likely to be uni-

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versally popular, and I take it that is why passenger rates are so low where the State owns the railroads. Whereas the policy which reduces freight rates, while keeping passenger rates high, is popular only with the shipper. It is true that every person who consumes anything carried by rail pays, theoretically, a part of the freight rate charged for that transportation; but the percentage, in any given case, is almost infinitesimally small, and the resultant charge for freight borne by a workingman's family is small beyond recognition compared with the addition of even five cents to the cost of his daily journey to and from work."

Fifty-Eighth Annual Convention of General Passenger and Ticket Agents' Association.

THE American Association of General Passenger and Ticket Agents have issued the proceedings of their Fifty-eighth Annual Convention, held at the Bellevue-Stratford Hotel, Philadelphia, on October 14th and 15th. Aside from the various committee reports, the convention was addressed by a number of prominent railway officals, including George W. Boyd, passenger traffic manager of the Pennsylvania Railroad; C. L. Hunter, vice-chairman of the Trunk Line Association; George D. Dixon, vice-president of the Pennsylvania Railroad; W. M. Acworth, a noted railway economist of England; W. J. Craig, passenger traffic manager of the Atlantic Coast Line; W. S. St. George, general passenger and ticket agent of the Missouri, Kansas and Texas Railroad; Joseph Richardson, chairman of the Southeastern Passenger Association; H. J. Rhein, general passenger agent of the Cleveland, Cincinnati, Chicago and St. Louis Railway; J. F. Mitchell, ticket auditor of the Atchison, Topeka and Santa Fe Railroad; F. J. McWade, general baggage agent of the Pennsylvania Railroad; J. A. McKensie, city passenger and ticket agent of the Grand Trunk Railway, and F. W. Conner, district passenger agent of the Pennsylvania Lines. The election of officers resulted as follows: President, W. J. Craig, passenger traffic manager of the Atlantic Coast Line; vice-president, Gerrit Fort, passenger traffic manager, Union Pacific Railroad; secretary, W. C. Hope, general passenger agent, Central Railroad of New Jersey. The personnel of the new executive committee is as follows: J. C. Hail, chairman; A. M. Cleland, W. F. Herman, W. H. Callahan, George W. Boyd, L. W. Landman and C. B. Ryan.

The address by Mr. George W. Boyd, passenger traffic manager of the Pennsylvania Railroad, which bears directly upon the relations between the public and the railways and which is therefore of peculiar interest at the present time, is reproduced in another section of this issue.

Railway Fire Protection Association Organized.

THE successful organization of the Railway Fire Protection Association was accomplished in Chicago at a meeting held at the Hotel Shoreham, on October 7th, over thirty railroads being enrolled as members. A rapid growth is anticipated on account of the vital importance of the movement.

A number of important addresses were delivered, including one by Mr. Charles N. Rambo, of Philadelphia, on "Fire Protection Applied in a Broad Sense to Railroad Properties," and another by Mr. A. D. Brooks, of Chicago, on "Spark Hazards." Colonel W. B. Dunn, chief inspector of the Bureau of Explosives, also addressed the Association and a most interesting paper was read by Mr. E. B. Berry, chief inspector of the Southern Railway, on "Causes of Fires." Other papers included one on "Building Construction," by Mr. Anson Murphy, fire prevention inspector of the Alabama Great Southern Railroad, one on "Fire Organization," by Mr. B. S. Mace, of the Baltimore and Ohio, and one by Mr. P. Hevener, of the Rock Island Lines, en-

GENERAL PASSENGER AND TICKET AGENTS PHOTOGRAPHED AT THEIR RECENT CONVENTION IN FRONT OF THE UNION LEAGUE, PHILADELPHIA.

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titled "How a Locomotive May Be Used to Extinguish a Fire." The officers of the new organization are: F. H. Elmore, president; C. B. Edwards, secretary and treasurer, and P. Hevener, vice-president.

Railroad Session of A. S. M. E.

THE American Society of Mechanical Engineers which held its annual convention in New York, December 2-5, devoted one afternoon to a railway session. On this occasion two papers were presented, one on "Steel Frame Box Cars," by Mr. R. W. Burnett, general master car builder of the Canadian Pacific, and one on "Steel Underframe Box Cars," by Mr. G. W. Rink, mechanical engineer of the Central Railroad of New Jersey.

Mr. Burnett, in his paper on steel frame box cars, considered the development of this type of car and outlines some of the factors which have been responsible for it. The practice on the Canadian Pacific, particularly in reference to the repairs, and the advantages of this type of car, were considered and special attention was directed to the methods of selecting and treating the lumber for the sheathing and lining.

Mr. Rink, in his paper, presented several tables showing the practice of a number of roads regarding the dimensions of various parts of box cars. These tables were prepared with a view to making it possible to select a design which would render the best practice. Mr. Rink believes that further steps should be taken toward adopting standards for use on the box cars of the railroads generally and suggests that a committee representing the different roads should be appointed with a view to developing a standard box car.

This is the first time that the merits of these two types of cars have been discussed so thoroughly by technical associations. Both of the papers cover the subjects which they deal with comprehensively. A number of railroad officers participated in the discussion which followed.

Meeting of Traffic Club of Chicago.

ON November 25th, Mr. Samuel O. Dunn, editor of the *Railway Age Gazette*, addressed the Traffic Club on "The Railroad Employe and the Railway Patron." He dealt especially with the effect both on the railway and on the traveling and shipping public of the changes and working conditions of employes that recently had been taking place as the result of legislation and arbitration proceedings.

Monthly Meeting of Richmond Railroad Club.

AT the October meeting of the Richmond Railroad Club, the members were addressed by Mr. W. Shoemaker on "Regulations of the Interstate Commerce Commission on Handling Dangerous Articles." He stated that in view of the safety first movement, operating officials should be impressed with the importance of carrying out the regulations of the Commission as to the transportation of dangerous articles. He called particular attention to the following points in these regulations:

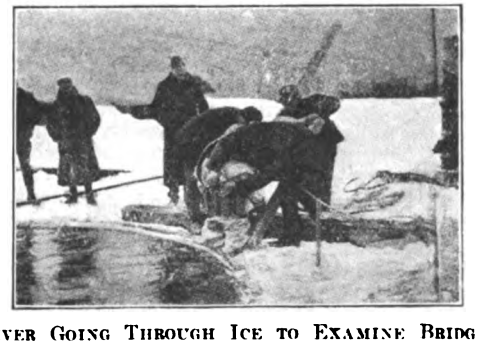
"It is absolutely forbidden to ship or to carry any explosives in passenger cars, except small arms ammunition and the necessary signals to operate the train, like torpedoes and railway fusees, and if you discover anyone shipping or carrying explosives in passenger cars the matter should be reported to your superior officer in order that he may take proper action. There are certain responsibilities placed upon the manufacturers, the shippers and the railroads. The manufacturers are required to pack their dangerous articles carefully and according to certain requirements and also to tell the railway not only the name of the shipment, but also its character; that is, whether it is dangerous or not. The railroads are required to see that they get this information and then to handle the packages and the cars containing them carefully. This is the business of all railroads, first securing the information as to the danger from the shippers and then acting upon it in order to secure safety in transportation."

Monthly Meeting of Canadian Railway Club.

THE October meeting of the Canadian Railway Club was of unusual interest to its members on account of the lecture delivered by Mr. R. F. Uniacke, bridge engineer of the National Transcontinental Railway on the construction work of that line. The lecture was illustrated by a number of lantern slides which carried the audience into a wild and unsettled country in which great engineering feats had to be accomplished before the road became a possibility. Mr. Uniacke confined himself largely to bridge and viaduct construction over which he had immediate supervision and which constituted the greatest problem in the building of the line. As he pointed out in the course of his lecture, there are on the railway between Moncton and Winnipeg over 200 bridges which, if put together, would extend about eleven miles. In their building 61,000 tons of steel were utilized and the cost of their construction was somewhat over $6,000,000.

Many unusual difficulties were encountered, including a number of land slides which displaced embankments and trestles and in one case displaced a concrete abutment of a bridge to such an extent as to make it necessary to use a permanent low steel trestle instead of the embankment.

On account of the extreme cold in that section of the country, work was often conducted under



DIVER GOING THROUGH ICE TO EXAMINE BRIDGE FOUNDATION.

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DOG TEAM AND RESIDENCY, EMPLOYED IN CANADIAN CONSTRUCTION WORK.

the most severe weather conditions, the temperature at times falling as low as 50 degrees below zero.

The accompanying photographs, showing a diver going down through the ice in order to examine a foundation in the river bottom and a dog team and residency used in the winter months, give some idea of the unusual conditions encountered.

November Meeting of New York Railway Club.

ON November 21st, the members of the New York Railway Club had the pleasure of listening to Mr. Daniel M. Brady, president of the Brady Brass Company, discuss the past, present and future of railway clubs. Mr. Brady dealt particularly with the organization and development of the Master Car Builders' Association, of which he has an intimate historical knowledge.

He pointed out that the New York Railway Club, the pioneer of such organizations, was informally organized during the winter of 1871-2 by Leander Geary, master car builder of the New York and Harlem Railroad, and a few associates and co-workers. This organization, however, was known as the Master Car Builders' Club until 1889, when the name was changed to that of the New York Railway Club.

In speaking of the developments of other railway clubs, Mr. Brady had the following to say:

"The formation of the New York Railroad Club seemed to pave the way for similar organizations, and other railway clubs were organized in different parts of the country, until to-day there are more than twelve railroad and railway clubs in the United States, holding periodical meetings during the season extending from September to May inclusive, and having an estimated membership of nearly 7,000 members. The work and growth of these railway clubs is known very generally throughout the country by nearly all railway men and many others outside of the immediate railway circle.

"To systematize, simplify and make certain methods and lines of work alike as far as possible to the secretaries of all the clubs, the idea was conceived by a few of the more prominent members of those who were interested in the work that some organization of the secretaries of the various clubs would be of great value along the lines mentioned.

"Accordingly, a meeting was called for the purpose of such organization at the Gilsey House, New York, December 1, 1896, the secretaries of the then existing railway clubs being invited to attend.

"At this meeting a permanent organization was effected, the name adopted being 'The Society of Railway Club Secretaries of the United States.' This was later changed to 'Society of Railway Club Secretaries.' Since the society was formed annual meetings have been held, and some of the systems adopted have been the uniformity toward rates of advertising, methods of registering members, colors assigned for the various clubs' proceedings, but the most important standard adopted was regulating the systematizing of the exchange of clubs' proceedings with other clubs upon a business basis.

"This and the admittance of the railway clubs' proceedings at second-class rates by the Postoffice Department, has saved to each club many hundreds of dollars."

Rate Advance Resolutions Passed by the Chicago Association of Commerce.

THE freight traffic committee of the Chicago Association of Commerce has adopted resolutions expressing the Association's position with regard to the proposed five per cent advance in interstate freight rates in the territory known as Official Classification territory. The resolutions follow:

"Whereas, The railroads in the so-called Official Classification territory filed a petition with the Interstate Commerce Commission to reopen the so-called general rate advance case (heard and decided adversely to the carriers about two years ago), to the end the carriers in said territory be permitted to advance all interstate rates five per cent; and

"Whereas, Said petition has been denied in lieu thereof the Commission will proceed to a general inquiry into the subject, and

"Whereas, The freight traffic committee of the Chicago Association of Commerce has held many meetings to consider and determine their attitude respecting the question, which they recognize as of great importance to the members of the Association,the carriers, as well as the public at large; and therefore be it

"Resolved, That the attitude of this committee is as follows:

"First. The committee is in sympathy with the plan of having the question adjudicated by the Interstate Commerce Commission, that body to determine from the facts the necessity for said proposed advance and the reasonableness of the rates to be established thereby. The committee look upon this proposed advance in the all-rail rates as experimental. If the benefits arising therefrom are mutual and of a permanent nature, the increase may be justified. If, on the contrary, the results are not permanent and a request for another increase in rates follows, it will demonstrate that advances in rates do not meet the issues involved, nor provide a remedy for existing conditions.

"Second. The committee especially invites the Commission's attention to the fact that the movement toward higher transportation charges in Official Classification territory has, in the past, fallen to an undue and unreasonable extent upon

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the rail-and-lake rates. If the claim of the carriers be conceded that increased cost of operation, taxes, and a return upon additional capital justifies some increase in all-rail interstate rates, we respectfully submit that such claim cannot and does not apply to the rail-and-lake rates, which have been advanced three times since 1900 (a total of approximately 11 per cent), without any change in the all-rail rates, which fact not only debars the claim that a fixed relation exists between the all-rail and rail-and-lake rates that requires them to be similarly changed, but establishes the further fact that traffic moving under these rates has already contributed in full measure to any reasonable advance. We therefore are irrevocably opposed to any advance in the present rail-and-lake rates. Be it further

"Resolved, That a copy of this resolution be sent to the Interstate Commerce Commission."

Meeting of American Railway Association.

THE American Railway Association held its fall session in Chicago on November 19, with 210 presidents, general managers and operating officials in attendance. There are now 402 members with jurisdiction over 269,317 miles of railroad.

The committee on the standard code of train rules reported that the present code is satisfactory if properly interpreted and rigidly adhered to, and also that it must be thoroughly satisfied as to the advantage in safety or efficiency of any changes before making any recommendations.

Modifications in the specifications for carbon-steel rails, as provisionally approved in 1912 by the Association, to provide for a variation of ⅛ inch instead of ¼ inch from the specified length, were referred to the American Railway Engineering Association for its consideration and recommendation. Likewise questions of the contour of chilled car whels and the throat clearances for frogs, crossovers and guard rails have been referred to the Engineering Society and to the Master Car Builders' Association.

The joint committee on automatic train stops reported changes from the tentative report in May. After discussion the report was referred back to the committee.

The electrical working committee has given attention to questions of overhead working conductor clearances and to the clearances for automatic train stops, but it desires that conclusions be reached by the technical associations before recommending action.

Mr. D. L. Bush, vice-president of the Chicago, Milwaukee and St. Paul Railway, and Mr. C. W. Galloway, general manager of the Baltimore and Ohio Railroad, were elected members of the committee on nominations.

International Engineering Congress for 1915.

AN effort is to be made in connection with the Panama-Pacific Exposition to establish an International Engineering Congress, whose sessions will be held during the week of September 20, 1915. An organization has already been perfected and the movement is well under way.

The purposes of the congress are: The gathering together of a large and representative body of engineers from all civilized countries, with the opportunities which this will present of forming or renewing personal acquaintances, and of interchanging views on the various phases of professional work; and the reading and discussion of papers before the various sections, and their later publication in such form as to constitute a valuable addition to engineering literature. The Congress is to be conducted under the auspices of the following five national engineering societies, namely, the American Society of Civil Engineers, the American Institute Mining Engineers, the American Society of Mechanical Engineers, the American Institute of Electrical Engineers, and the Society of Naval Architects and Marine Engineers. The organization and conduct of the Congress have been placed in the hands of a committee of management consisting of the presidents and secretaries of these five societies, and of eighteen other members representative of them and resident in or near San Francisco. While the engineering features involved in the construction of the Panama Canal are to receive conspicuous attention, and Colonel George W. Goethals, chairman and chief engineer of the Isthmian Canal Commission, is expected to act as honorary president of the Congress and has promised to preside in person over its general sessions, it is intended that the Congress shall be truly international in scope and that it shall embrace, in a thorough and comprehensive manner, the various branches of the engineering profession. The secretary of the Congress is Mr. W. A. Cattell, Foxcroft Building, San Francisco, Cal.

Convention of Foundrymen.

THE recent convention of Foundrymen, held in Chicago, was unusually successful. During the same week, conventions of the American Institute of Metals and of the Associated Foundry Foremen were also held and in the International Amphitheater was displayed a most comprehensive exhibit of foundry apparatus, equipment and accessories, supplemented by a modern machine tool display. Taken all together, the exhibit was the most comprehensive of its kind ever attempted.

A New Railroad Association Organized.

THE Short Line Railroad Association of the Southeast has been organized with the following officers: President, J. W. Oglesby, Quitman, Ga.; vice-president, L. T. Nichols; secretary, C. B. Lucas; state vice-presidents, W. M. Blount, Alabama; W. B. Denham, Florida; R. B. Coleman, Georgia; R. K. Smith, Mississippi; J. E. Hancock, North Carolina; W. H. Patterson, South Carolina; W. B. Townsend, Tennessee; W. E. Mingen, Virginia. The purpose of the organization is to unite the influence of the short lines for the protection and advancement of the properties, in much the same manner as the General Managers' Association of the Southeast serves the trunk lines of that part of the country.

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Annual Election of Cincinnati Railway Club.

THE Cincinnati Railway Club held its annual election and dinner November 11. The following officers were elected: President, Henry B. Voorhees, general superintendent of the Cincinnati, Hamilton and Dayton and Cincinnati Terminal division; first vice-president, W. R. Hudson, general superintendent of the Kentucky general division of the Chesapeake and Ohio; second vice-president, C. H. Rae, assistant superintendent machinery of the Louisville and Nashville; secretary, Henry Boutet, chief interchange inspector; treasurer, W. Holmes, Galena Signal Oil Company; sixth member of the executive committee, C. E. Rickey, superintendent terminals of the Queen and Crescent. Vice-president T. C. Powell, of the Queen and Crescent, was the principal speaker, his subject being "Co-operation."

LEGISLATION.

Coastwise Traffic and Tolls.

IT seems safe to assume that the present session of Congress is likely to give some consideration to the subject of Panama Canal tolls. In this connection, it is therefore of interest to note what has already been done in an effort to legislate on this question.

Senator Root, of New York, by S. 96, and Mr. Sims, of Tennessee, by H. R. 1922, would amend the Panama Canal Act by striking out the words "no tolls shall be levied upon vessels engaged in the coastwise trade of the United States."

A bill was introduced by Mr. Newlands, of Nevada, S. 923, which would amend the Act of August 24, 1912, by exempting from tolls all vessels belonging to the United States Government. This bill introduced by Mr. Newlands also takes into consideration a toll system so that the totals collected would not exceed the cost of operation and amount of fair interest on investment. It also provides a system for reaching the proper charge for foreign vessels by assuming to deduct from the estimated cost and interest the amount lost by making deductions in favor of American vessels, thus arranging that no cost of these deductions would fall on foreign shipping.

Mr. Humphreys, of Washington, by H. R. 2896, would prevent shipments in combines and conferences from passing through the Panama Canal.

Mr. Burton, of Illinois, by H. R. 4479, goes further than merely the exemption of the American coastwise shipping from tolls, and he would amend the Interstate Commerce Act so as to bring all coastwise shipping as carriers within the meaning of the Act and therefore amenable to the Interstate Commerce Commission.

Mr. Steenerson, of Minnesota, by H. R. 5847, would prevent monopoly in the coastwise trade between Atlantic and Pacific coast ports of the United States via the Panama Canal by allowing vessels of foreign registry to engage in such trade upon payment of canal tolls.

Mr. Moore, of Pennsylvania, introduced two bills and one joint resolution. The first, H. R. 3377, repeals the section of the Panama Canal Act which provides for free entry of foreign material for the construction or repair of vessels, either machinery or equipment. The second, H. R. 3378, proposes to create a Panama Canal Trade Commission of seven members, five to be citizens of the United States.

The duties of the Commission shall be to investigate and report to the President the advantages of the Panama Canal to the commerce of the United States with Central and South America. The third, House Joint Resolution 68, proposes that the Secretary of State shall confer with Great Britain and other nations with a view to their participation in the cost of construction and maintenance of the Panama Canal and thus bring about its neutralization.

Mr. Pomerene, of Oregon, by Senate Joint Resolution 22, proposes to abrogate the Clayton-Bulwer and Hay-Pauncefote treaties in order to dispose of the question of our right to exempt American coastwise trade from the payment of Panama Canal tolls.

Government Ownership.

AS government ownership becomes more and more a matter of debate by the public press and, in a number of instances, by railway executives, it is a matter of interest to note what has actually been attempted along these lines by our National Legislators. During the past session of Congress the following bills bearing either directly or indirectly on this subject were introduced:

H. R. 79, introduced by Mr. Reilly, of Connecticut, proposes to consolidate the Interstate Commerce Commission with the Post Office under the Postmaster General with ten associates at a salary of $10,000 each. This measure would permit the Department to take over railroads on six months' notice and would guarantee to stockholders a return equal to the average return for the ten years previous. It would allow holders of bonds of such railroads to exchange same for five per cent forty year United States bonds. The measure also specifies regulations for the operation of roads handling freight, parcel post, etc.

Of somewhat similar intent is H. R. 1935, introduced by Mr. Goeke, of Ohio. This bill would extend the operations of the postal service to express companies and railroad carriers; would provide for their acquisition by the government, the value of their holdings, etc., to be determined by the Interstate Commerce Commission.

Mr. Cary, of Wisconsin, introduced H. R. 2866 and 2867. The first deals with the government ownership of telegraph lines, and the second with the government ownership of telephone lines.

STATE COMMISSIONS.

Illinois.—The last regular meeting of the Illinois Railroad & Warehouse Commission was held December 4th. On January 1st the Public Utilities Commission law goes into effect, but the government has thirty days in which to make the appointments of the five members, who will compose the board and the act under which the Illinois Warehouse Commission was inaugurated

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does not become repealed until the five commissioners are in power.

The Railroad Commission has adopted a code of rules governing the construction, maintenance and operation of interlocking plants. The rules were formulated by the engineers of the Commission and those of Wisconsin, Minnesota and Indiana.

An order has been issued by the Railroad and Warehouse Commission prohibiting the Aurora, Elgin & Chicago Railroad from running its trains at a rate faster than fifty miles an hour. According to the Commission, some of the trains on the road have been operated at a speed of 75 miles per hour.

Maryland.—After several months of investigation of the grade-crossing situation, the Public Service Commission on November 20th, passed an order requiring all railroads in Maryland to file with the Commission within the next fifteen days a statement showing every grade crossing along its line.

When this information is in hand the Commission will make a report to the next Legislature. It is proposed that the remedying of conditions shall proceed conservatively but steadily and in a way that will not work a hardship either upon the public or upon the railroads.

South Carolina.—President W. J. Harrahan, of the Seaboard Air Line Railway, has informed the Railroad Commission that his company has an option on the stock of the North & South Carolina Railway running from Hamlet to Mullins and thence to Andrews, but that it has not exercised it. The Seaboard, he says, has a traffic contract with the North & South Carolina and has aided it in placing securities, but does not own it. A link is now being built from Charleston to Andrews connecting with the North & South Carolina Railway, so that eventually the Seaboard will have a direct entrance to Charleston.

The Seaboard denies ownership of the Georgetown & Western Railway running from Georgetown to Lanes, but admits ownership of the Raleigh & Charleston, running from Lumberton, N. C., to Marion, S. C., and on which the State Railroad Commission has ordered the Seaboard to put continuous mileage.

LEGAL.

New Haven Bond Issue Sustained. — Judge Sheldon, of the Massachusetts Supreme Court, has refused to issue an order restraining the New York, New Haven & Hartford R. R. from issuing the $67,000,000 debenture bonds recently authorized by the Public Service Commission. A restraining order was sought in a bill in equity filed by former Governor Morgan G. Bulkley, of Connecticut. The road filed an answer in the case holding that the Public Service Commission acted within its powers in authorizing the issue and that its decision was not open to review.

False Classification Charges Filed at New York.—A total of 125 cases are now the subject of investigation under Assistant United States District Attorney Knox, at New York City, relative to fraudulent classification of merchandise by shippers. The railroads are said to have lost at the rate of several million dollars annually, by these practices. Three firms against whom indictments were entered have pleaded guilty and fines have been imposed, in the criminal branch of the federal court, aggregating $1,350. Mr. Knox has stated that it is not the aim of the government to prosecute shippers or manufacturers of merchandise, but to protect the railroads by forcing strict observance of the law.

Commerce Court Rules in Favor of Tap Lines.—The United States Commerce Court has annulled the order of the Interstate Commerce Commission which forbids payment by railroads of allowances to so-called tap lines.

The court held that "the Commission was not only without power to forbid any allowance whatsoever to be made by trunk lines to the petitioning proprietary industries for switching but it was also without power to prohibit the making of joint rates by the trunk lines and the petitioning tap lines and the payment by the former to the latter of some division thereof for its services." The court held, however, that the Commission was fully empowered to regulate the amount of allowances so as to prevent rebates and unjust discriminations. The cases will be carried to the Supreme Court.

Supreme Court Construes Hours of Service Law.—In the United States Supreme Court, on November 10th, an important opinion was read by Justice Holmes construing the federal hours of service act regulating the employment of railway employes, in interstate commerce. The opinion affirmed the judgment of the United States District Court for the Eastern District of Texas, against the Missouri, Kansas & Texas Railway, holding that in a violation of the law the railroad may be held for a separate penalty for each employe who is required to work overtime. The railroad sought to set aside the judgment on the ground that while several employes were involved the cases all grow out of a single circumstance and therefore but one penalty could be imposed. The Supreme Court overruled this contention and incidentally rejected another contention put forward by the railroad, that employes not actually at work during the time an engine was disabled and that had gone to another station for repairs, could not be held to be within the act.

TRAFFIC.

Heavy Suburban Passenger Traffic at Boston.—Recent compilations for the year ending June 30, 1913, show that 5,942,104 more persons passed through the South Station at Boston, Mass., than through the Grand Central Station in New York. The totals are: South Station, 28,347,399; Grand Central, 22,405,295—an average daily for the former of 77,664, for the latter, 61,379. The number of trains entering and leaving each week-day at the South Station is 843; the number of trains handled each week-day at the Grand Central is 450. The number of trains handled on Sundays is much less at each terminal.

Passes to Employes' Relatives Cancelled in Pennsylvania.—Owing to provision made in the

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new Public Service Law of Pennsylvania, the Pennsylvania Railroad has issued the following notice to its employes:

"Under the terms of the Public Service Company Law of the State of Pennsylvania, which becomes effective January 1st, 1914, the free transportation between points within the State of Pennsylvania of members of the families of officers and employes of the above Companies will not thereafter be permissible. The issue of passes covering such transportation after January 1st, next, will be discontinued accordingly."

November Anthracite Shipments.—Total shipments of anthracite coal from Pennsylvania last month were 5,786,931 tons as against 6,165,536 tons in November, 1912, a decrease of 379,605 tons. The amount of coal on hand at tidewater shipping ports remained about the same, being 603,223 tons on October 31st, and 603,031 tons on November 30th.

Total shipments of anthracite coal in the first eleven months of 1913 were 63,407,010 tons. The shipments in December, 1912, were 5,944,502 tons. If the shipments this month equal those of December, last year, the total for the year will be 69,351,512 tons, or 602,787 tons less than the high record of 1911 which was 69,954,299 tons.

Changes in Western Classification Committee.—The proposed radical change in the make-up of the western classification committee, by appointing a permanent committee of three members who will hold daily sessions in Chicago for the presentation of petitions by shippers or carriers and to make recommendation, has been accomplished. The committee consists of H. C. Bush, formerly traffic manager of the Colorado Midland, W. E. Prendergast, general freight agent of the St. Paul, and R. C. Fyfe, chairman of the old committee. The headquarters of the committee will be in the Transportation Building, Chicago.

State Commissions Differ Regarding Express Rates.—At a meeting held in Chicago, on December 12th, of various State Railway Commissioners, there developed a sharp difference of opinion with regard to uniform express rates for the entire country. The Commissioners have been considering the possibility of making intrastate rates uniform with the tariffs recently prescribed by the Interstate Commerce Commission. At the conference referred to, W. A. Ryan, representing the Interstate Commerce Commission was present and explained and defined the National rates. With the submission of figures, however, showing the advantages which some States enjoy through the reductions effected by their Commissions, it became apparent that the uniform rate had encountered opposition that probably will prevent its recommendation by the States' organizations.

The attitude of the State Commissions is of interest, as indicating what might be expected under government ownership.

ELECTIONS AND APPOINTMENTS.

Executive.

W. B. Biddle, vice-president, St. Louis and San Francisco Railroad. Headquarters, St. Louis, Mo.

F. Bryars, director, Cincinnati, Georgetown & Portsmouth R. R.

F. F. Dinsmore, director, Cincinnati, Georgetown & Portsmouth R. R.

A. Douglas, vice-president, St. Louis and San Francisco R. R.

Kingdom Gould, director, International and Great Northern Ry.

John T. Harris, director, St. Louis and San Francisco R. R.

C. W. Hillard, vice-president, St. Louis and San Francisco R. R.

E. G. Kessler, vice-president and treasurer, Cincinnati, Georgetown & Portsmouth Railroad.

John F. Livingston, president and general manager, Columbia, Newberry & Laurens Ry. Headquarters, Columbia, S. C.

W. S. McChesney, director, East Side Terminal Belt Line.

Edgar L. Marston, president, Manhattan Ry. Co. Headquarters, New York City.

G. W. Nichols, director, Cincinnati, Georgetown & Portsmouth Railroad.

W. C. Nixon, director, St. Louis and San Francisco R. R.

Charles A. Peabody, director, Baltimore and Ohio R. R.

Edmund Pennington, president, St. Paul Union Depot Company.

A. T. Perkins, director, St. Louis and San Francisco R. R.

H. H. Pierce, director, St. Louis and San Francisco R. R.

E. B. Pryor, director, East Side Terminal Belt Line.

Nathaniel M. Rice, vice-president, Atchison, Topeka and Santa Fe Ry. Headquarters, Topeka, Kansas.

A. G. Ridgeway, president, Memphis Bridge Terminal Company.

H. D. Sexton, director, East Side Terminal Belt Line.

John G. Shedd, director, Baltimore and Ohio Railroad.

A. J. Siegel, president, Cincinnati, Georgetown & Portsmouth R. R.

W. Thompson, director, Cincinnati, Georgetown & Portsmouth R. R.

Festas J. Wade, director, St. Louis and San Francisco R. R.

C. A. Winnedge, director, East Side Terminal Belt Line.

Legal.

Denegre, Levoy & Chaffe, general attorneys, Morgan's Louisiana and Texas R. R. & Steamship Co., The Louisiana Western and the Iberia & Vermillion. Headquarters, New Orleans, La.

W. F. Evans, general counsel, St. Louis and San Francisco Railroad.

Warren Olney, Jr., general counsel, Western Pacific Ry.

Financial.

Edward Beecroft, assistant secretary and assistant treasurer, Elgin, Joliet and Eastern Railway. Headquarters, Chicago, Ill.

Charles J. Fingle, secretary and general manager, Cincinnati, Georgetown & Portsmouth Railroad.

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F. H. Hamilton, secretary and treasurer, St. Louis and San Francisco R. R.

W. F. Hull, assistant secretary, St. Louis & San Francisco R. R. Headquarters, St. Louis, Mo.

F. L. Koontz, secretary and treasurer, Elgin, Joliet & Eastern Railway. Headquarters, Chicago, Ill.

A. D. Martin, assistant cashier, Kanawha Dispatch Routes.

Accounting.

John W. Crowell, general auditor, Bangor & Aroostook R. R. Headquarters, Bangor, Me.

Oscar Lawlor, auditor, San Pedro, Los Angeles & Salt Lake R. R. Headquarters, Los Angeles, Cal.

Engineering and Mechanical.

E. L. Akans, master mechanic, Virginia & Southwestern. Headquarters, Bristol, Tenn.

William G. Arn, roadmaster, Indiana Division, Illinois Central. Headquarters, Mattoon, Ill.

S. M. Bate, division engineer, New Orleans, Texas and Mexico and the Beaumont, Sour Lake & Western Ry. Headquarters, De Quincy, La.

August F. Blaess, district engineer, Northern lines, Illinois Central R. R. Headquarters, Chicago, Ill.

Gus Blaser, roadmaster, First District, Oregon Short Line R. R. Headquarters, Kemmerer, Wyo.

D. J. Brumley, assistant chief engineer, Illinois Central. Headquarters, Chicago, Ill.

W. B. Bunn, general foreman, Cincinnati, New Orleans and Texas Pacific Ry. Headquarters, Chattanooga, Tenn.

J. A. Cassady, master mechanic, Cincinnati, New Orleans and Texas Pacific Ry. Headquarters, Birmingham, Ala.

J. Clifford, assistant engineer maintenance of way, Canadian Pacific Railway. Headquarters, Winnipeg, Man.

W. G. Coughlin, engineer maintenance of way. Pennsylvania Railroad. Headquarters, Philadelphia.

P. T. Craig, chief clerk to master mechanic, Rock Island Lines. Headquarters, El Dorado, Ark.

Arthur B. duBray, signal engineer, Missouri Public Service Commission. Headquarters, Jefferson City, Mo.

W. E. Dyke, general foreman, Cincinnati, New Orleans and Texas Pacific. Headquarters, Danville, Ky.

E. G. Enright, superintendent of motive power, Western Pacific Ry.

Charles Flynn, roadmaster, Chicago, Rock Island & Pacific. Headquarters, Des Moines, Iowa.

James W. Gibbs, master mechanic, Southern Railway. Headquarters, Sheffield, Ala.

F. L. Gumm, roadmaster, St. Louis, Rocky Mountain & Pacific. Headquarters, Raton, N. M.

J. W. Hackett, master mechanic, Houston Belt & Terminal Ry. Headquarters, Houston, Texas.

H. B. Hayes, master mechanic, Cincinnati, New Orleans & Texas Pacific Ry. Headquarters, Somerset, Ky.

Alfred Herbster, traveling car foreman, Lake Shore and Michigan Southern. Headquarters, Cleveland, Ohio.

J. M. Henry, superintendent of motive power, Pennsylvania Railroad. Headquarters, Pittsburgh.

Frank Johnson, master mechanic, Southern Railway. Headquarters, Birmingham, Ala.

John Kruttschnitt, mechanical inspector, Illinois Central. Headquarters, Chicago, Ill.

A. B. McDonald, superintendent of car shops, Intercolonial Railroad. Headquarters, Moncton, N. B.

L. L. Moebeck, road foreman of engines, Northern Pacific Ry. Headquarters, East Grand Forks, Minn.

M. B. Morgan, assistant engineer maintenance of way, Illinois Central Railroad. Headquarters, Chicago, Ill.

Fred B. Oren, roadmaster, St. Louis Division, Illinois Central R. R. Headquarters, Carbondale, Ill.

William G. Orn, roadmaster, Illinois Central R. R. Headquarters, Mattoon, Ill.

J. W. Porter, chief engineer, Hudson Bay Ry. Headquarters, Winnipeg, Man.

F. N. Reynolds, general yardmaster, C. C. C. & St. L. R. R. Headquarters, Indianapolis, Ind.

W. H. Ripley, general foreman, car department, Lake Shore and Michigan Southern Ry. Headquarters, Chicago, Ill.

W. H. Rupp, chief engineer, Sumpter Valley Railroad. Headquarters, Baker, Oregon.

J. R. Stephens, general chairman, Valuation committees, Missouri Pacific, St. Louis Iron Mountain & Southern, Denver and Rio Grande and Western Pacific Railways. Headquarters, St. Louis, Mo.

C. F. Stoltz, signal engineer, Cleveland, Cincinnati, Chicago and St. Louis R. R. Headquarters, Cincinnati, Ohio.

E. W. Thome, district engineer, Yazoo & Mississippi Valley R. R. Headquarters, Memphis, Tenn.

D. W. Thrower, district engineer, Illinois Central R. R. Headquarters, Memphis, Tenn.

C. L. Wallace, assistant chief engineer, Kansas City Southern Railway.

J. S. Waltz, car repair foreman, Lake Erie and Western R. R. Headquarters, Lima, Ohio.

A. B. Warner, chief engineer, Chicago, Rock Island and Gulf R. R. Headquarters, Fort Worth, Texas.

M. R. Williams, general foreman of bridges, buildings and water service, St. Louis Rocky Mountain & Pacific Ry. Headquarters, Las Vegas, N. M.

Operation.

A. M. Baird, assistant superintendent, Atchison, Topeka and Santa Fe Railway. Headquarters, Topeka, Kansas.

Edward Bodamer, trainmaster, Illinois Central R. R. Headquarters, Fulton, Ky.

M. J. Boyle, superintendent, Minnesota division, Chicago and North Western Ry. Headquarters, Winona, Minn.

G. A. Bradley, division superintendent, Norfolk Southern R. R. Headquarters, Norfolk, Va.

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Frank Brophy, assistant superintendent, Houston Division, Galveston, Harrisburg & San Antonio Ry. Headquarters, San Antonio, Texas.

Charles E. Brooks, acting superintendent, Montana Division, Oregon Short Line. Headquarters, Pocatello, Idaho.

Harry G. Brown, trainmaster, Waterloo terminals and Albert Lea District, Illinois Central R. R. Headquarters, Waterloo, Ia.

J. W. Butz, trainmaster, Missouri, Kansas & Texas Ry. Headquarters, Greenville, Texas.

M. H. Cahill, superintendent, New Castle division, Baltimore & Ohio Railroad. Headquarters, New Castle Junction, Pa.

J. Cannon, superintendent, Missouri Pacific Ry. Headquarters, Jefferson City, Mo.

W. G. Curran, assistant general superintendent of transportation, Baltimore and Ohio Southwestern and the Cincinnati, Hamilton and Dayton. Headquarters, Cincinnati, Ohio.

W. F. Carroll, trainmaster, Dakota division, Chicago and Northwestern Ry. Headquarters, Huron, S. D.

J. H. Cumbes, superintendent, Renovo division, Pennsylvania Railroad. Headquarters, Williamsport, Pa.

E. Dover, trainmaster, Chicago & Northwestern Ry. Headquarters, Antigo, Wis.

J. W. Doyle, superintendent, Madison Division, Chicago and Northwestern. Headquarters, Baraboo, Wis.

H. E. Fell, trainmaster, St. Louis, Rocky Mountain & Pacific Railroad. Headquarters, Raton, N. M.

J. B. Fick, manager, Southwest Louisiana Development Bureau. Headquarters, Lafayette, La.

A. S. Greig, first assistant to chief operating officer, St. Louis & San Francisco, R. R.

John M. James, assistant superintendent, Pittsburgh Division, Pennsylvania Railroad. Headquarters, Pittsburgh, Pa.

F. D. Kelsey, superintendent of the Butte Division, Great Northern Ry. Headquarters, Great Falls, Mont.

A. A. Kirkman, chief despatcher, First and Second Divisions, Virginian Railway. Headquarters, Victoria, Va.

A. W. Koontz, agent and operator, Rock Island Line. Headquarters, Havelock, Neb.

E. J. Lampert, assistant superintendent, Cumberland division, Baltimore and Ohio R. R. Headquarters, Keyser, W. Va.

F. L. Lewis, general superintendent, San Antonio, Uvalde and Gulf R. R. Headquarters, Pleasanton, Texas.

I. H. Luke, superintendent, Salt Lake Division, Denver & Rio Grande R. R. Headquarters, Salt Lake City, Utah.

F. F. McCauley, assistant superintendent, Minnesota Division, Chicago & Northwestern Ry. Headquarters, Winona, Minn.

E. E. McClellan, general superintendent, San Benito & Rio Grande Valley. Headquarters, San Benito, Texas.

F. Mears, acting general superintendent, Panama Railroad.

J. S. Moore, assistant superintendent, First and Second divisions, Virginian Railway. Headquarters, Victoria, Va.

Elliott B. Nash, assistant general superintendent, Chicago and Northwestern Railroad. Headquarters, Chicago, Ill.

Frank O'Brien, superintendent, Southern Illinois division, Chicago & Northwestern Railway. Headquarters, South Pekin, Ill.

E. B. Penga, superintendent, Sumpter Valley Ry. Headquarters, Baker, Oregon.

B. A. Porter, superintendent, Memphis Division, Yazoo & Mississippi Valley R. R. Headquarters, Memphis, Tenn.

George J. Shreeve, superintendent, Belt Railway of Chicago. Headquarters, Chicago, Ill.

J. T. Slattery, superintendent, Second Division, Denver and Rio Grande. Headquarters, Salida, Colo.

J. D. Stack, assistant superintendent, Cincinnati, Hamilton and Dayton Railway Company. Headquarters, Dayton, Ohio.

S. G. Strickland, general manager, Chicago & Northwestern Ry. Headquarters, Chicago, Ill.

G. B. Vilas, general superintendent, Chicago & Northwestern Ry.

N. A. Williams, superintendent, Green River Division, Denver and Rio Grande R. R. Headquarters, Helper, Utah.

B. T. Wood, second assistant to chief operating officer, St. Louis and San Francisco Railroad.

Traffic.

Guy Adams, mail traffic manager, Union Pacific Railroad. Headquarters, Chicago, Ill.

G. W. Adams, traveling freight agent, Galveston, Harrisburg & San Antonio. Headquarters, Houston, Texas.

Brent Arnold, Jr., general agent, Western Maryland R. R. Headquarters, Cleveland, Ohio.

C. B. Austin, commercial agent, Western Maryland Ry. Headquarters, Youngstown, Ohio.

Henry Avila, district passenger agent, Union Pacific System. Headquarters, San Francisco, Cal.

C. F. Bigelow, passenger agent, of lines with headquarters at Jacksonville, Fla.

Henry Blakely, general freight agent, Northern Pacific Ry. Headquarters, St. Paul, Mo.

B. R. Borland, agent, Rock Island Lines. Headquarters, Ellis, Neb.

A. A. Boyle, commercial agent, Missouri & North Arkansas R. R. Headquarters, New Orleans, La.

W. C. Brown, district freight solicitor, Pennsylvania R. R. Headquarters, Buffalo, New York.

W. B. Burrett, traveling agent, Erie Despatch. Headquarters, Little Rock, Ark.

W. B. Byrne, general agent, passenger department, Chicago, Burlington and Quincy Railroad. Headquarters, Pittsburgh, Pa.

D. L. Campbell, farmers' co-operative agent, Atlanta, Birmingham and Atlantic R. R. Headquarters, Fitzgerald, Ga.

H. F. Cary, general passenger agent, Southern Railway. Headquarters, Washington, D. C.

W. L. Childers, agent, Wabash Railroad. Headquarters, Toledo, Ohio.

W. M. Coble, traveling freight agent, Macon, Dublin & Savannah R. R. Headquarters, Jacksonville, Fla.

W. E. Cole, agent, Lehigh Valley R. R. Headquarters, Satterfield, Pa.

D. H. Conover, agent, Lehigh Valley R. R. Headquarters, Clinton, N. J.

W. H. Crevers, general agent, Union Pacific

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R. R. and the Oregon Short Line. Headquarters, Ogden, Utah.

J. Harry Cross, freight solicitor, Pennsylvania Railroad. Headquarters, Reading, Pa.

Stanton Curtis, assistant general passenger agent, Southern Ry. Headquarters, Chicago, Ill.

S. F. Daggett, traveling freight agent, Western Maryland Ry. Headquarters, Toledo, Ohio.

W. H. Day, Jr., traffic manager, Lynn Chamber of Commerce. Headquarters, Lynn, Mass.

C. A. DeSaussure, assistant general passenger agent, Southern Railway. Headquarters, Memphis, Tenn.

C. D. Douglas, traveling freight agent, Baltimore and Ohio Railroad. Headquarters, Columbus, Ohio.

T. J. Dowdell, traveling freight agent, Western Maryland Ry. Headquarters, Cleveland, Ohio.

Edward A. Dye, traveling agent, Chicago, St. Paul, Minneapolis and Omaha Ry. Headquarters, Vancouver, B. C.

J. M. Farriss, traveling freight and passenger agent, Sunset Central Lines. Headquarters, Dallas, Texas.

George E. Fetterman, freight solicitor, Pennsylvania R. R. Headquarters, Philadelphia.

Charles D. Fisher, assistant general passenger agent, Chicago Great Western R. R. Headquarters, Chicago, Ill.

W. R. Flounders, Jr., freight solicitor, Pennsylvania R. R. Headquarters, New York.

James Freeman, assistant general passenger agent, Southern Railway. Headquarters, Birmingham, Ala.

W. B. Greer, traveling agent, Erie Despatch. Headquarters, Little Rock, Ark.

Ben R. Grove, traveling passenger agent, Louisville and Nashville R. R. Headquarters, Indianapolis, Ind.

P. G. Hayden, district freight solicitor, Pennsylvania R. R. Headquarters, Boston, Mass.

C. H. Jackson, commercial agent, Ann Arbor R. R. Headquarters, Pittsburgh, Pa.

C. A. Kline, assistant general passenger agent, Southern Ry. Headquarters, Washington, D. C.

R. E. Lay, division freight and passenger agent, Sunset-Central Lines. Headquarters, Ft. Worth, Texas.

S. J. Lamoreaux, general agent, Western Maryland R. R. Headquarters, Pittsburgh, Pa.

G. A. Lawton, traveling passenger agent, Cincinnati, New Orleans and Texas Pacific Ry. and the Alabama Great Southern R. R. Headquarters, Atlanta, Ga.

A. M. Lee, assistant general claim agent, Northern Pacific Ry. Headquarters, Seattle, Wash.

A. E. Lock, commercial agent, Toronto, Hamilton & Buffalo Ry. Headquarters, Hamilton, Ont.

William Long, city passenger agent, New York Central Lines. Headquarters, Indianapolis, Ind.

Milton Luthi, excursion agent, Pennsylvania Lines West.

Francis L. Lutz, agent, Lehigh Valley R. R. Headquarters, Flemingville, N. Y.

W. E. McGee, assistant general passenger agent, Southern Ry. Headquarters, Columbus, S. C.

Bennett Maass, contracting freight agent, Macon, Dublin & Savannah R. R. Headquarters, Macon, Ga.

C. W. Mahoney, chief clerk to assistant general passenger agent, Great Northern Railway. Headquarters, Seattle, Wash.

H. T. Mason, mail traffic manager, St. Louis and San Francisco R. R. Headquarters, St. Louis, Mo.

P. H. Mattimoe, agent, Wabash Railroad. Headquarters, Decatur, Ill.

W. L. Miles, traveling freight agent, Western Maryland. Headquarters, Indianapolis, Ind.

A. J. Morris, division freight agent, Sunset-Central Lines. Headquarters, Galveston, Texas.

W. J. Mulvihill, traveling freight agent, Western Maryland Ry. Headquarters, Cincinnati, Ohio.

DIVIDEND NOTICE.

LEHIGH VALLEY RAILROAD COMPANY.

Philadelphia, December 17, 1913.

The Board of Directors of the Lehigh Valley Railroad Company have this day declared a semi-annual dividend of five per cent (or $2.50 per share) on its preferred stock to stockholders of record, December 27, 1913; and a semi-annual dividend of five per cent (or $2.50 per share) on its common stock to stockholders of record, December 27, 1913; both payable January 10, 1914.

Checks will be mailed.

J. M. BAXTER, Treasurer.

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DIVIDEND NOTICES.

Philadelphia Electric Company, 419 Market Street,
Camden, N. J., November 10, 1913.

The Board of Directors have this day declared a quarterly dividend of one and three-quarters (1¾) per cent (being 30.625 cents a share) upon the paid in capital of the Company, payable Monday, Dec. 15, 1913, to stockholders of record Nov. 20, 1913.

H. C. LUCAS, Treas.

Office of The United Gas Improvement Co., N. W. corner Broad and Arch Streets.

Philadelphia, December 10, 1913.

The Directors have this day declared a quarterly dividend of two per cent ($1.00 per share), payable January 15, 1914, to stockholders of record at the close of business December 31, 1913. Checks will be mailed.

LEWIS LILLIE, Treasurer.

The Northern Central Ry. Co.

Baltimore, December 8, 1913.

The Board of Directors has this day declared a semi-annual dividend of four per cent ($2 per share) upon the Capital Stock, payable on and after January 15, 1914, to stockholders as registered December 31, 1913. Checks will be mailed to stockholders who have filed permanent dividend orders.

JAMES F. FAHNESTOCK, Treasurer.

American Car and Foundry Company.

New York, December 5, 1913.

COMMON CAPITAL STOCK.

Dividend No. 45.

A dividend of one-half per cent (½%) on the Common Stock of this Company has this day been declared, payable Thursday, January 1, 1914, to stockholders of record at the close of business Saturday, December 13, 1913.

Checks will be mailed by the Guaranty Trust Company of New York.

S. S. DELANO, Treasurer.

WM. M. HAGER, Secretary.

American Car and Foundry Company.

New York, December 5, 1913.

PREFERRED CAPITAL STOCK.

Dividend No. 59.

A dividend of one and three-quarters (1¾%) on the Preferred Stock of this Company has this day been declared, payable Thursday, January 1, 1914, to stockholders of record at the close of business Saturday, December 13, 1913.

Checks will be mailed by the Guaranty Trust Company of New York.

S. S. DELANO, Treasurer.

WM. M. HAGER, Secretary.

8 Grape Vines, 6 Currant Bushes

All best 3 year old stock. If planted now or early spring will fruit next summer. Should ground be frozen we tell you how to protect and keep them dormant ready for early spring planting. Grapes are Worden, Niagara, Iona, Concord, the best early medium and late varieties. Large cherry currants. **Surprise Free Gift**—Roses, shrubs or plants with every order. **$1**

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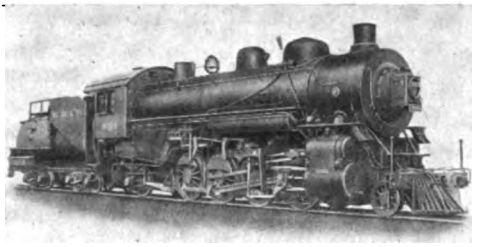

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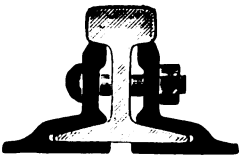

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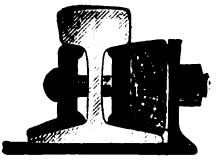

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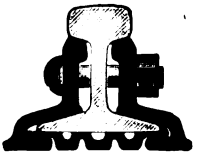

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Lv. North Philadelphia	4.31 P. M.	Ar. North Philadelphia	7.54 A. M.
Lv. Washington	3.10 P. M.	Ar. New York	
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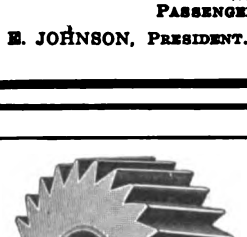

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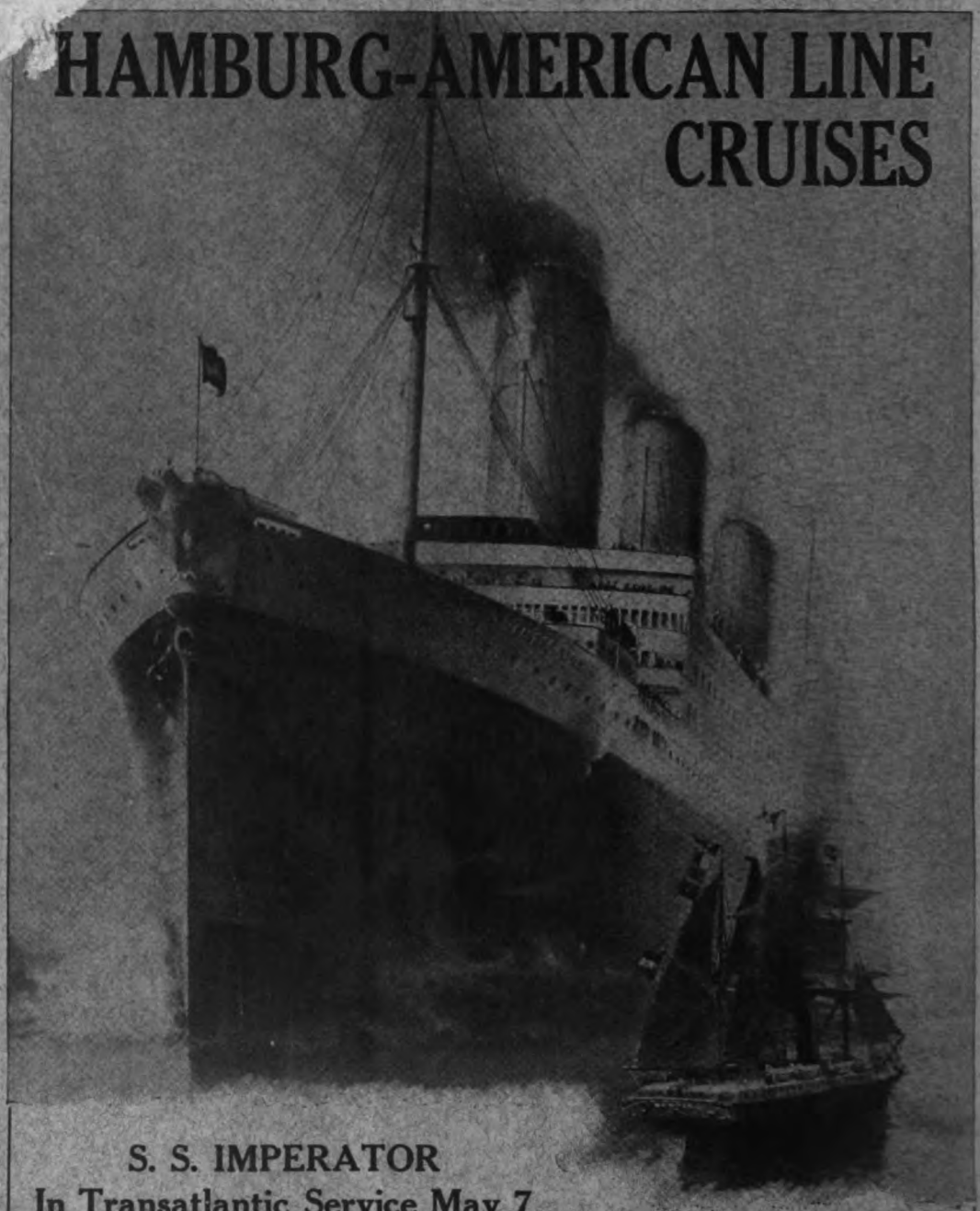

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